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Money in goats

Willie Sheldon Bull

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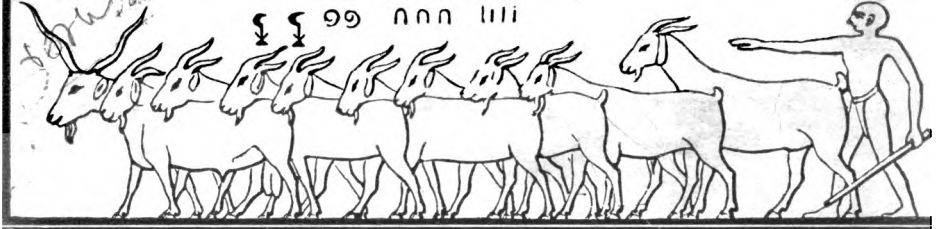

MONEY IN GOATS

By W. Sheldon Bull

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MONEY *in* GOATS

By W. SHELDON BULL

Author of "NANNY THE POOR MAN'S COW", "OUR BACK-YARD DAIRY", "ONE FAMILY'S SOLUTION OF THE MILK PROBLEM", "OUR PIANO BOX MILKING SHED", "ON WINTERING MILCH GOATS"

Be thou diligent to know the state of thy flocks, and look well to thy herds.

The goats are the price of the field.

PROVERBS XXVII 23, 36.

BUFFALO, N. Y., U. S. A.
PUBLISHED BY THE AUTHOR
1915.

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By W. SHELDON BULL

Fine money

A copy of "Money in Goats" will be mailed to any address, postage prepaid, on receipt of 50 cents, by the author (Mr. *not Dr.*) W. SHELDON BULL, 204 ASHLAND AVENUE, BUFFALO, N. Y.

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ACKNOWLEDGEMENT.

In the preparation of the following pages use has been made to some extent of material previously published in the following magazine articles: "Nanny, The Poor Man's Cow" in "Country Life in America," May, 1907; "Our Back-Yard Dairy" in "Good Housekeeping," April, 1908; "One Family's Solution of the Milk Problem" in "Suburban Life," October, 1909; and "Our Piano-Box Milking-Shed" in the Christmas number of "Country Life in America," for 1909. Acknowledgement is gratefully made to the editors of the above mentioned magazines for their courtesy in placing this matter again at my disposal.

The wide circulation given these and other articles, together with the appreciative reception accorded them by the daily press, and other periodicals, (two having been reprinted in full in the "Buffalo Medical Journal"), resulted in the writer's being fairly overwhelmed with letters from interested inquirers. Hence the first edition of "Money in Goats."

In many of the extensive reviews given the first edition, the author had undeservedly conferred upon him the title of "Doctor." This statement is made to avoid the possibility of having the work criticised as the product of a medical, back-to-the-land or nature fakir.

During three months following the appearance of these reviews, herewith gratefully acknowledged, over 600 communications were received, from every state in the union (excepting Nevada and South Dakota), from British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario, and from Cuba and Mexico. The receipt of these letters, coming from 297 post offices, testifies to the widespread desire for knowledge concerning the goat, and has encouraged the author to undertake the publication of this new and enlarged work.

No apology is offered for the book, published at the author's own risk in order that he might have a free hand concerning the contents,—except for its many shortcomings—nor for the fact that it is written by a layman, a back-yard milch-goat fancier.

The utmost pains has been taken to verify, from authoritative sources and from government reports which cannot be disputed, all statements, medical or otherwise, which are not based upon the writer's own practical experience. The material has been drawn from a variety of sources. As far as possible, however, acknowledgment has in each case been made in the text itself. For much of the material relating to the "Angora" the writer is indebted to the "Report of the Tariff Board on Schedule K", and to "Farmers' Bulletin 573." Acknowledgement is also due the advertisers, as without their co-operation, the book could not have been published.

(MR. *not Dr.*) W. SHELDON BULL.

Buffalo, N. Y., U. S. A.,
March 23rd, 1915.

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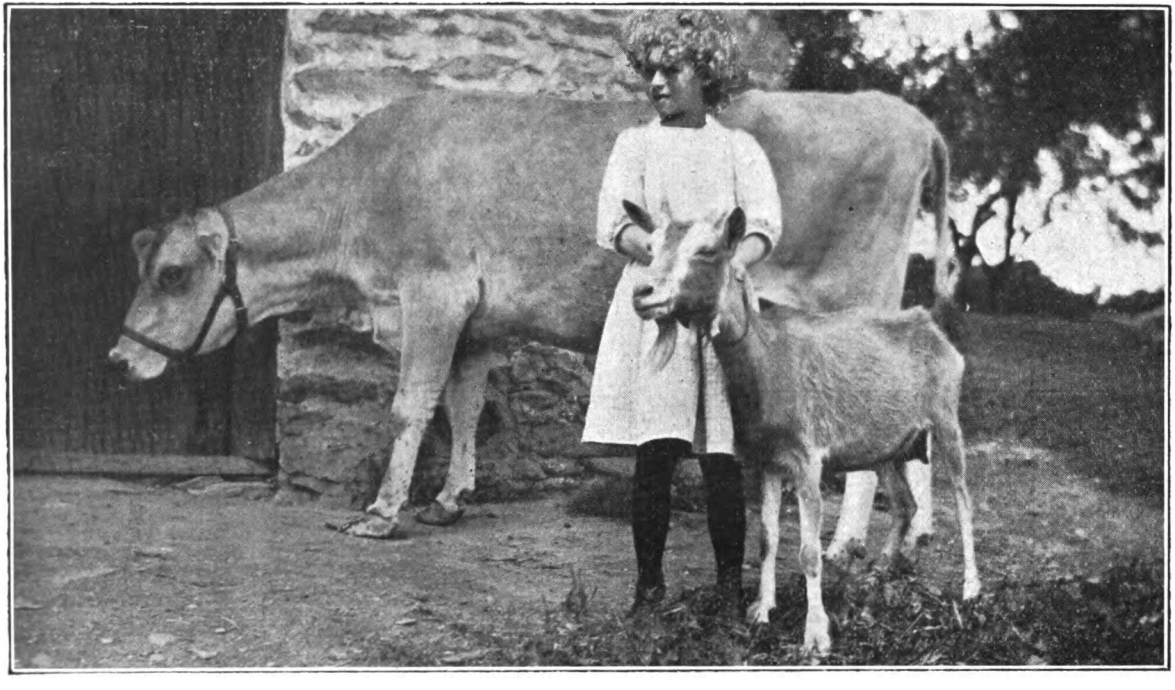

Toggenburg doe imported 1904 by Wm. More Decker, M. D. Photo. by W. Sheldon Bull.

"AN EXTENSIVE USE OF GOATS' MILK IN PLACE OF THAT OF THE COW WOULD LEAD TO A CONSIDERABLE REDUCTION IN THE ENORMOUS MORTALITY FROM THE VARIOUS FORMS OF TUBERCULOSIS WHICH AFFLICT INFANTS."—*Spargo.*

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MONEY IN GOATS

INTRODUCTION.

"The Philistines brought Jehoshaphat presents, and tribute silver; and the Arabians brought him flocks, seven thousand and seven hundred rams, and seven thousand and seven hundred he goats."—*II Chronicles, xvii,* 11.

While comparatively few goats are kept in the United States, and but scant attention is paid to these useful little animals; in the East, in Asia, especially, and in some parts of Africa, goats have from time immemorial, constituted an important part of the flock, and have been a source of wealth to the people. In Europe, also, the goat has been quite generally appreciated as one of the valuable domestic animals.

From a period so remote as to be far beyond known history, the goat has always been the "little friend of all the world." The relics which have been found indicate that the goat was domesticated by prehistoric man. We have unquestionable proof, in the ancient monuments still in existence, from the evidence of Hebrew Scriptures, and from the early Greek and Roman writers, that the animal was not only known, but was highly esteemed for thousands of years before our era.

The domesticated goat held an important place in ancient husbandry. "There was a man in Maon, whose possessions were in Carmel; and the man was very great, and he had a thousand goats." I Samuel 25:2. Its milk and flesh were staple articles of food, the meat of the kid, especially, being considered a delicacy. "I pray thee, let us detain thee, until we shall have made ready a kid for thee." Judges 13:15. The hair of the animal was woven into various kinds of fabric. "All the women whose heart stirred them up in wisdom spun goats' hair." Exodus 35:26. The skins were utilized for many purposes, among others large numbers being used for bottles. The wandering nomads were probably the first who employed skins as the most practical receptacles for carrying liquids. "Jesse took an ass laden with bread, and a bottle of wine, and a kid, and sent them by David his son unto Saul." I Samuel 16:20. Goat skin bottles were in general use among all ancient peoples for holding water, wine, oil or milk, and the custom, nowise diminished, still survives in the Orient.

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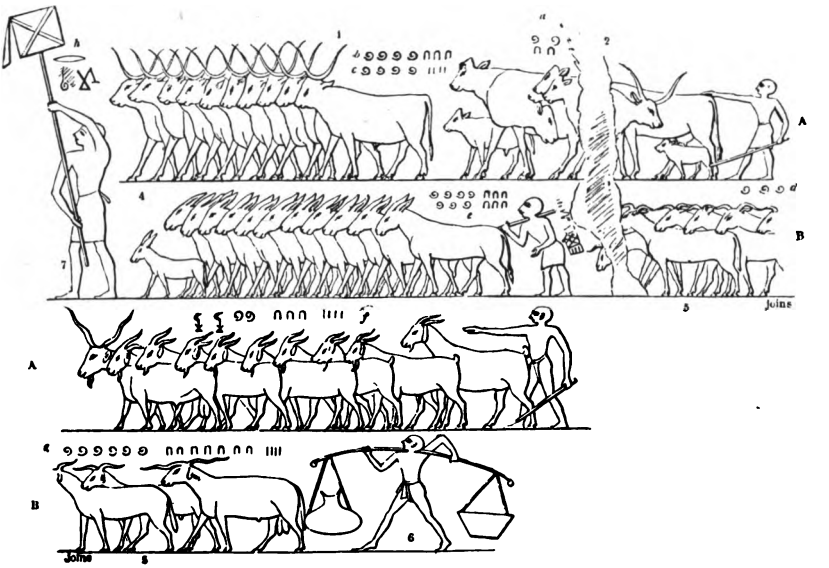
The paintings, sculptures and hieroglyphic text that have come down to us through the ages, on the walls of Egyptian tombs and temples, inform us that, from the earliest times, the Egyptians possesed large flocks of goats.

While the Egyptians were far advanced in the arts and sciences, and attained remarkable pre-eminence as a manufacturing nation, "everything tends to show," according to Erman, "that they felt that agriculture, together with cattle-breeding, was the most important industry in the country. Cattle-breeding takes up a very large space in the representations on the monuments; in almost every tomb of the Old Empire we meet with the herdsman and his animals."



Copied from Wilkinson.

FIG. 1.—AN EGYPTIAN ROUND UP, FOUR THOUSAND YEARS AGO.

This picture from a tomb near the Pyramids is particularly interesting from the numbers being written over the animals: Oxen 834, Cows 220, Asses 760, Goats 3234, and Sheep 974.

The marked care with which the different breeds are kept apart in the pictures indicate that, even under the "Old Empire," (2830 to 2530 B. C.), the Egyptians had long emerged from the primitive stages of cattle breeding. With their knowledge of animals, and the great attention they paid to their habits, they were able to tame the timid antelopes and other wild ruminants, breeding them in their farmyards, and driving them to the census

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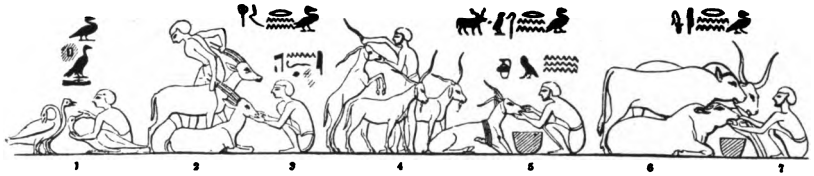
or round ups, on the large landed estates, like the cattle, sheep and goats.

They took the utmost care of their domesticated animals and fowl, and understood and practised successfully the veterinary science, administering medicine or food by hand when occasion required as shown in Fig. 2.



Copied from Wilkinson.

FIG. 2.—EGYPTIANS TREATING SICK ANIMALS AND GEESE.
The fore-leg of the goat is tied up to prevent the animal rising while the medicine is administered.

Notwithstanding the fact that Egypt was exceedingly rich in skins and hides, the result of the stock-breeding so extensively carried on, the great demand for leather both at home and for export, created a market far greater than could be satisfied by the produce of the country. Quantities of skins were consequently imported from other lands.

That the Egyptians were exceedingly skillful in the tanning and preparation of leather is shown in the leathern objects found in the tombs. Concerning this, Wilkinson the Egyptoligist says "the fineness of that employed for making the straps placed across the bodies of mummies discovered at Thebes, and the beauty of the figures stamped upon them satisfactorily prove the skill of the leather-cutters and the antiquity of embossing; some of these bearing the names of kings who ruled Egypt about the period of the Exodus, or 3300 years ago."

The tools they employed were neither numerous nor complex. "It is curious to observe," says Wilkinson, "that the semicircular knife used by the ancient Egyptians between 3000 and 4000 years ago, is precisely similar to that of our modern curriers. The semicircular knife, a sort of chisel, the common awl (specimens of which have been found at Thebes, similar to our own), a stone for polishing the leather, the cutting table, the bending form, the horn, and a few other utensils, were all that were used in the shops of these ancient shoemakers or curriers. A prepared skin, the emblem of their trade, was suspended together with ready-made shoes and other articles, to indicate their skill and to invite a customer."

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The artists who made these ancient paintings and sculptures were keen students of nature. In spite of the fact that they were hampered and restricted by conventional rules of drawing, the figures of the animals are portrayed in various positions with life-like accuracy. The gait—the abrupt little trot of the goat in Fig. 1—the action and flexion of the limbs—the straining upward of the goat while browsing in Fig. 3—being rendered with great fidelity, though drawn in simple outline with but few strokes of the brush.

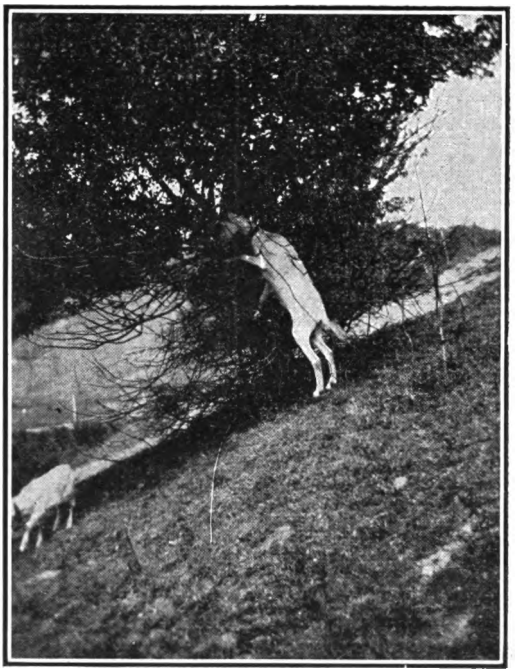

Photo. by W. S. Bull.

SAANEN GOAT BROWSING ON THE HILLSIDE.

Their intimate acquaintance with the creature, and their close observation of its habits are amply demonstrated by comparing the pictures of browsing goats, copied from the tombs, with the photograph of a Saanen goat browsing on a hillside in this country, made three or four thousand years later.

The coincidence as here shown was the result of a happy accident, as the photograph—a fortunate snap-shot—was taken by the writer some time before he knew of, or had seen the Egyptian drawings.

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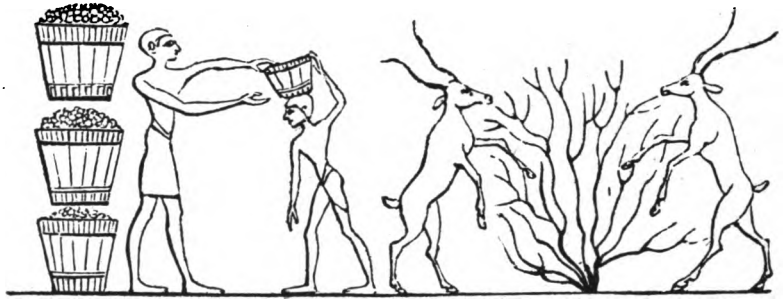
The remarkable similarity in the position of the Saanen goat in the photograph, and that of the "goats browsing in a vineyard" as shown in Fig. 3, and that of the straining body and hindlegs of the erect goat in Fig. 4, is striking evidence of the truth to nature of the drawings made by the ancient artists.



Copied from Wilkinson.

FIG. 3.—GOATS BROWSING IN A VINEYARD.

After the vintage was over, kids were allowed to browse upon the vines which grew as standing bushes; kids so fed were considered more delicate for the table.

ANCIENT ASSYRIA.

In Assyria, also, the ancient monuments show that the goat was utilized in the same manner as in Egypt. In addition, great quantities of skins were used, according to Layard, in the construction of their river craft by the Assyrians, sometimes as many as seven or eight hundred being employed for a single kellek, a raft having a framework of poles and timbers, bound together by willow withes, and floating on inflated skins, the number of skins being proportioned to the dimensions of the kellek. These primitive rafts, which carried both merchandise and passengers, were used for ages in conducting the commerce of the countries watered by the rivers of Mesopotamia. From modern travelers we learn that the Tigris is still navigated in this manner, as the kelleks are well adapted for descending the stream, which at times is very shallow. They are of no use, however, in going up stream against the current. Consequently when the rafts reach Bagdad they are taken apart, the wood sold, often at a profit, and the deflated skins brought back to Mosul, to serve again and again for the same purpose.

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ANCIENT PALESTINE.

In Palestine, in patriarchal days, the goat was as highly valued as in other eastern countries, being used for food, its hair woven into curtains and tent covers, and its skin employed for garments and bottles.

The goat also entered largely into the sacrificial ritual of the Jews, as is shown by many Biblical references. "He shall take the two goats, and present them before the Lord at the door of the tabernacle of the congregation." Leviticus 16:7.

GREEKS AND ROMANS.

With the ancient Greeks and Romans the rearing of goats was an important industry. The frequent reference to these useful little animals by numerous classical writers is evidence of this. Aristotle (384-322 B. C.) in his "History of Animals," said to be "the most ancient and celebrated contribution to science which has come down to us," displays his intimate knowledge of the milch goat, as may be seen in the following quotations: "It is not the nature of goats to be stationary, but they are active and ready to move from place to place. Sheep pasture for a long while in one place, without leaving it, but goats change their places very soon, and only crop the top of the grass. The best milk is that of the sheep and goats, and next, that of the cow. There is more cheese in the milk of the cow than of the goat. The milk which contains less cheese is better for infants."

Virgil (70-19 B. C.) did not disdain to sing of Nanny and her virtues in his "Georgics," which Dryden calls "the best poem of the best poet"; as will be seen in the following idyllic lines:

"On shrubs they browse, and, on the bleaky top
Of rugged hills, the thorny bramble crop.
Attended with their bleating kids they come
At night, unasked, and mindful of their home;
And scarce their swelling bags the threshold overcome.
If milk be thy design, with plenteous hand
Bring clover-grass; and from the marshy land
Salt herbage for the foddering rack provide,
To fill their bags, and swell the milky tide.
These raise their thirst, and to the taste restore
The savour of the salt, on which they fed before.
Some, when the kids their dams too deeply drain,
With gags and muzzles their soft mouths restrain,
Their morning milk the peasants press at night;
Their evening meal, before the rising light,
To market bear."

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Athenaeus, who wrote in the second century of our era, says in the "Banquet of the Learned" that "there were also very often kids brought round by the servants; which afforded us no ordinary pleasure; for the flesh of the goat is exceedingly nutritious."

Copied from Erman.

FIG. 4.—FELLING PALMS, GOATS BROWSING ON THE FOLIAGE.

ORIGIN AND HISTORY.

We are informed by naturalists that the goat originated in Asia. Our first historical knowledge of the animal, however, came from Egypt. For centuries, in all parts of the world, the goat has been bred so carelessly and aimlessly, that it is possible to classify only a few of the numerous varieties into breeds. In this connection it is interesting to note the resemblance between the short-haired common goat of today and the animal possessed by the ancients. This resemblance is evidenced by comparing the Egyptian does pictured in Fig. 1, and also on the cover of this book, with the does in the illustration of a herd of Texas milch goats facing page 29.

A photograph, which faces page 168 in that exhaustive work "La Chevre" by Jules Crepin, shows Crimean goats with wide-spreading horns, pendant ears, and bodies seemingly identical with that of the buck, marching before the herd, in the ancient pictures mentioned above.

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The late George Fayette Thompson, in "Bulletin No. 68, of the Bureau of Animal Industry," issued by the United States Department of Agriculture, in plate 3 shows "American milch goats" and "Australian goats," and in plate 4 shows a "Poona (India) goat," which apparently are counterparts of the Egyptian does, in all of their chief characteristics.

From other drawings reproduced from those in the tombs, it is apparent that the Egyptians possessed hornless goats, and others with horns and erect ears, very like the common goats with which we are familiar; and also similar to the "English milch goat", pictured and described by Holmes Pegler in "The Book of the Goat," the most complete and authoritative work on the subject in the English language.

Diodorus, two thousand years ago, advanced the opinion that the knowledge of husbandry was carried from Egypt into Greece. Does there not seem reason for believing that the common goat was introduced from Egypt into Southern Europe? And might it not also have been introduced from Southern into Western Europe and Great Britain by the Romans?

THE GOAT AND MANKIND.

"The relations of the goat to mankind," says Shaler in "Domesticated Animals," "are in certain ways peculiar. The creature has long been subjugated, probably having come into the human family before the dawn of history. It readily cleaves to the household and exhibits much more intelligence than the other members of our flocks and herds. It yields good milk, the flesh is edible, though in the old animals not savory, and the hair can be made to vary in a larger measure than any of our animals which are shorn. Yet this creature has never obtained the place in relation to man to which it seems entitled."

While it is a fact that in the United States "this creature has never obtained the place in relation to man to which it seems entitled," it is not true of other countries nor of other races.

The lack of appreciation of the economic value of the Goat, in this country, is doubtless due in great measure to the fact that, with the exception of the Angora Goat, the commercial possibilities of the animal are not yet sufficiently realized.

However, when it becomes more widely understood that we are sending abroad from twenty to thirty millions of dollars annually for goat-skins, because practically none are produced by us; notwithstanding that the natural conditions, in this broad land of ours, are favorable for raising goats, which produce just such skins as we import; is it unreasonable to look forward to such a growth of the industry, in this country, as will supply our home market with at least a portion of the millions of goat-skins used year by year?

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THE ANGORA GOAT.

"For hairy goats of equal profit are with wooly sheep, and ask an equal care."—*Virgil.*

While the Angora Goat has been bred in this country for sixty-five years, it is only within a comparatively recent period that this animal has been utilized to any great extent. Dr. James B. Davis, of South Carolina, is credited with having been the first to introduce the Angora into the United States. This importation, made in 1849, has been augmented by breeding and by a number of subsequent importations by different individuals, so that today there are a large number in this country, to be found in almost every state in the Union, but principally in the west and southwest.

The chief value of the Angora consists in its fleece which, commercially known as Mohair, is largely used in the making of various fabrics. The production of Mohair in this country was small for many years, but it has recently developed into an important industry.

The Angora is also valuable as a brushwood destroyer, its flesh is palatable and nutritious, and occasionally an excellent milker is found among them.

In 1899 the number of Angora goats in the United States was estimated at 454,932 head, over two-thirds of which were in the three States of Texas, California, and New Mexico. The mohair from these goats amounted to 961,328 pounds.

In 1910 there were practically 1,500,000 head of Angoras, the majority of which were still found in the Southwest—in Texas, New Mexico, and Arizona. The hair sheared from these goats in 1910 amounted to over 4,250,000 pounds, or a little less than 3 pounds per head.

In 1899 the mills of the United States used 1,077,000 pounds of domestic mohair, which undoubtedly included some held over from the crop of 1898. The amount of imported mohair for the year 1899 was 1,119,465 pounds, making a total of 2,196,465 pounds used in the United States for that year.

The leading American mills using mohair report that for the year 1910 they used a total of 3,648,868 pounds of domestic mohair and 1,119,573 pounds of imported mohair.

These figures, both for the number of pounds of mohair produced and the amount used in the mills, indicate that the industry has made reasonable advances during the past decade.

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MOHAIR AND ITS USES.

As stated before, in the year 1910 the American mills used almost 5,000,000 pounds of mohair, about two-thirds of which was of American raising.

Comparing the imported hair with the domestic, manufacturers agree that the domestic lacks brightness and lustre and does not spin so well as the Turkish hair. Owing to certain climatic conditions, especially in the Southwest, it is necessary to shear the goats twice a year, which of course results in a much shorter staple, whereas the foreign goats are generally shorn but once a year.

Every effort is made to grow as long a staple as possible, and in Oregon and some parts of California, where the goats are sheared but once a year, the production of hair between 15 and 20 inches in length is not unusual in flocks where the grade has been kept up to the highest possible standard.

This quality of mohair is used for making false hair, etc., and sells for a much higher price than the ordinary grades. A notable instance is the one of the fleece of Romeo, sweepstakes buck at the El Paso show in 1910. It weighed 18 pounds, measured 20¾ inches in length, and sold for $115. This quality of mohair could not be grown, however, under average conditions. It could not be produced upon rough brush land nor under conditions where feed and care were not the best. In the Southwest it would be difficult to produce it, on account of climatic conditions, yet some breeders have succeeded in producing an excellent quality in this section.

For the United States as a whole, where the fleece is allowed to grow an entire year, the average length is about 10 inches.

The imported hair shrinks on an average of about 14 per cent, the domestic 17 per cent. The amount of the shrinkage varies greatly, however, with the State or section from which it is shipped, that of the Southwest being of a much heavier shrinkage than hair received from the Northwest.

The following articles are made from mohair: Plushes used for railway cars and upholstering furniture, coat linings, dress goods, astrakhans, fancy passementeries, men's summer suits, automobile tops, braids, rugs, and carriage robes, imitation furs for women's and children's wear, couch and table covers, portieres, and crimped and curled mohair for making false hair. The skins tanned with the hair on are used extensively for carriage robes, muffs, and trimmings for coats and capes.

SOURCES OF MOHAIR.

There are three principal sources of mohair in the world—Turkey, South Africa, and the United States.

According to the most reliable information available, there

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are in the region about the velayet of Angora, where the breed of Angora goats originated, approximately 1,200,000 of these goats.

In all Africa, but mostly in the Cape Province of the South African Union, there are about 3,585,000 Angoras, with about 5,000,000 goats of the common breeds.

Courtesy *The Angora Journal* (Portland, Ore.)

A SOUTH AFRICAN PRIZE WINNER.

Unfortunately for the preservation of the pure Angora blood, the Turks many years ago began to cross their flocks with the common "Kurd" goats, which resulted in so great an infusion of inferior blood that to-day all goat raisers agree that there are no "pure-blood" Angoras left, those now used being more or less contaminated with the common blood.

To protect its flocks from being drawn upon and to preserve to the Turkish people the Angoras in their purest state, the Turkish Government some years ago prohibited the exportation of Angoras, and later the South African Government, evidently alarmed at the rapid rise of the business in the United States, placed a very high export duty (£100=$484) per head on all the Angoras exported from that country and subsequently prohibited their export entirely.

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The American Angora raiser therefore has had in recent years but the one source for obtaining new blood to build up the flocks of this country—South Africa; but, fortunately, before the Turkish embargo was passed some of the best of the Turkish goats had been exported to the United States and also to South Africa, so that in all probability, due to the higher interest taken by the Angora raisers in these countries, it is not likely that much better blood can be procured in Angora itself than may be found in either South Africa or the United States.

The high quality of American bred Angoras has been demonstrated by the fact that breeders of other nations have exported quite a number from the United States. In 1894 six Angoras were exported to South Africa from California, and the next year 20 bucks followed for $1000 cash. Canada, Alaska, and some of the Pacific Islands also have flocks that came originally from California. Recently exportations have been made to Brazil and Argentine Republic.

QUALITY OF MOHAIR.

The manufacturers state that as a general thing the production of domestic hair has improved greatly during the last few years, both in staple and in freedom from kemp or dead hairs. In using the domestic and imported hair the manufacturers usually blend the imported in such a proportion as to enable them to use the resulting blend in most of their products.

As the goat grows older the fiber of the hair becomes straighter and thicker and loses its curly quality as well as its lustre; hence the best hair comes from the kids, young wethers, and young does.

The highest grade of mohair should hang in curly ringlets from all parts of the animal's body. The mohair manufacturers prefer hair not less than 6 inches in length, one of the leading mills stating that they could use very little of the southwestern hair on account of its being too short. Some Texas flocks were investigated where the growers had produced fleeces from 15 to 22 inches long, and such fleeces were sold for special purposes, bringing very high prices.

The great effort of the Angora raisers of today is to develop a goat that will shear a long lustrous, curly fleece of fine character and free from the obnoxious "kemp."

Kemp is the long coarse hair which, with very few exceptions, is found in even the best of the Angoras. It is believed to be a last reminder of the common blood which was bred into the original herds in Turkey, and in the judgment of some of the best growers it will never be completely eradicated.

The objection to kemp is that it will not take any of the dyes used in dyeing mohair, and for this reason the manufactured goods are defective whenever the kemp is used.

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Kemp can readily be discovered in a fleece as it lacks the lustre or sheen of the true mohair, being a dead chalky white and coarser than the rest of the fleece.

The majority of the manufacturers purchase a large percentage of their hair direct from the growers, either personally or through selling agencies established by the National Mohair Growers' Association.

The margin between the supply of American mohair and mill demand seems to be approximately the number of pounds of hair imported. One reason for the importations appears to be that there is a shortage of the higher grades in the domestic supply. The American growers can possibly increase their mohair shipments to this amount without overtaking the mill demand, provided, always, they can improve the grade of the hair until it is equal or superior to the imported article. Most mohair experts agree that when proper care and attention is given, American mohair equal to the best South African or Turkish mohair can be raised in this country.

SHEARING.

Goats are sheared in the Southwest in the spring, generally in February, March, or April, and again in September or October. The shearing is done either by hand or by machine, the cost varying from 5 to 8 cents per head. The fleeces are not tied but simply rolled and sacked, the kid mohair being sacked by itself.

The average shearing value of the American Angora is not as high as it probably might be, due to the admixture of common blood in many of the flocks. The average for the higher class flocks is probably over 3½ pounds per head, but taking the country over, it is probable that the average will be somewhat under 2½ pounds. The average of all the flocks investigated by the Tariff Board is about 3½ pounds. One registered flock containing 227 head averaged 5½ pounds each. However, a high shearing average is not altogether an evidence of superior mohair. The average for the Turkish Angoras is but 2¾ pounds per head according to the best authority available, while that for South Africa is above 3½ pounds per head.

It is stated, however, that the Turkish product is of much higher value per pound than that of South Africa, and it is probable that the latter region shears many older goats, which increases the output per head but reduces the fineness of the mohair. It is noted that a number of flocks in western United States do not shear to exceed 1½ to 2 pounds per head of a very mediocre class of hair which brings the lowest price in the market. Goats of this class naturally receive but little attention, and the income from the sales of hair is small.

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RECEIPTS.

The average receipts from mohair per goat are approximately $1.02. The average price per pound for all the flocks investigated was 29 cents. Owing to the varying conditions under which the mutton is sold it is impossible to make any averages from that source which will be fair to the entire goat-raising region.

A statement from one of the large commission firms in Kansas City, covering the year 1910, shows that nearly all the goats shipped to Kansas City (which is the largest goat market in the country) come from the Southwest. This firm handled practically all the goats shipped during that year and the average weight was 63 pounds each. The amount received for the goats varied widely, one shipment having netted but 40 cents per head, while the highest netted $3.27 per head, with an average net value of $1.75.

Throughout the Southwest it has been noted that breeders who have been careful in the improvement of their flocks, and given them the same care which the sheep man gives his flocks, have made a profit out of their investment. This profit has of course, been greater or smaller in accordance with the ability to market the mutton. Unfortunately, however, a large number of the goat raisers in the Southwest merely handle the goats as a side issue to other operations or to utilize certain portions of their range not available for other domestic animals. Under such circumstances the care necessary to improve the breed and obtain the greatest income from the goats is lacking. Such men have made little or no money in Angoras.

The average-grade Angora goat throughout the Southwest is valued at approximately $3.25 per head. The average value of all the flocks investigated by the Tariff Board is $4.31 per head.

It is apparent that the future of Angora goat-raising industry lies in improving the output of mohair and in educating the American people to the eating of "Angora mutton."

In southern New Mexico, in the vicinity of Silver City and Lake Valley, a number of very high-grade Angora flocks are found. There are also several excellent flocks in southern Arizona. In California they are scattered, some of the leading flocks of registered and high-grade goats being found near San Jose, while in the northern part there are many large flocks of grade goats. In Oregon, in the Willamette Valley, there are some small flocks of high-grade Angoras, producing an extremely useful and lustrous quality of hair, very free from kemp and comparing favorably with imported hair. One of the best flocks in the United States is found in Montana, but there are comparatively few Angoras in that State.

Large prices have been paid in past years for improved South African bucks, $5,000 having been paid by a New Mexican goat grower several years ago.

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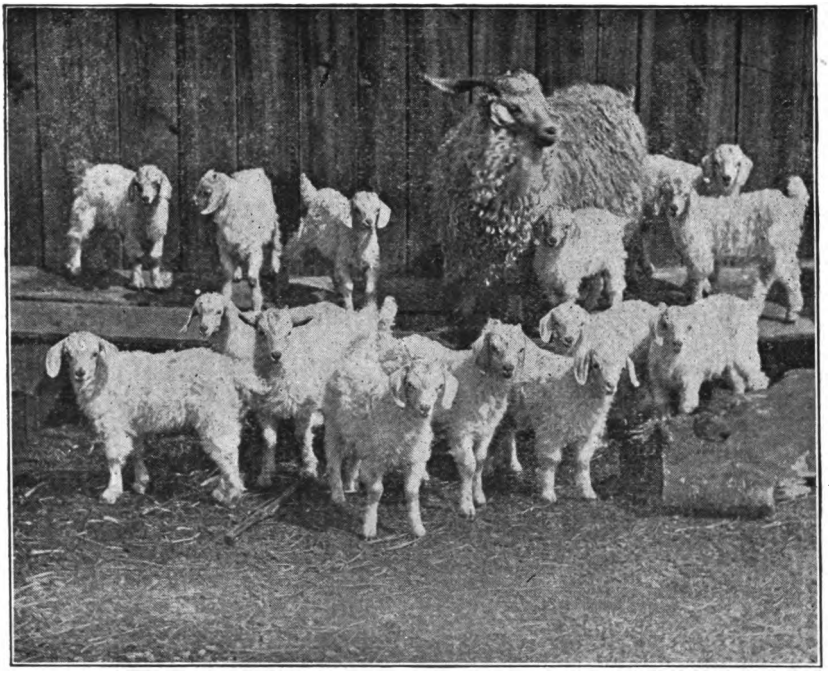
BREEDING.

The age at which the does should be bred has an important bearing on the welfare of the flock. The general opinion prevails that if they are forced to bear the burden of reproduction before they are 18 months old their growth will be stunted. Neither is it regarded advisable to use the bucks for breeding purposes before they attain this age.



Courtesy *Our Dumb Animals* (Boston)

ANGORA KIDS AND THEIR SIRE.

The goats are supposed to be in their prime when from 2 to 6 years of age, but they have been known to reproduce regularly up to the age of 15 years. It does not generally pay to keep them too long, as the mohair becomes continually coarser with advancing age.

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The average per cent of increase from bred does for 1910, a bad year, was 56.5 per cent. The normal average for the flocks investigated by the Tariff Board for the entire Southwest will not exceed 65 per cent. In some few registered flocks, where especially good care was given at kidding time, an increase of over 100 per cent was recorded. The losses among the kids are frequently very heavy. The losses among the older goats are mainly due to predatory animals, climatic conditions, and starvation. Cold rains after shearing frequently cause heavy loss. The spring of 1910 all over the Southwest was a most unfortunate one for all Angora goat growers, the loss in some cases being almost total, while in many instances it has been estimated that 50 per cent of the goats died from the extremely cold, wet weather of that period.

Contrary to the general understanding, the raising of Angora goats is rather difficult. The young are much more delicate than lambs, and the mortality greater, especially among the well-bred animals. A great deal of personal care is absolutely necessary in raising the kids up to about 2 months of age. Many methods are adopted in handling the kids, it having been found necessary not to allow them to follow the doe out on the ranges for some weeks after they are born.

HANDLING GOATS ON RANGES.

In general, the goats are handled much the same as sheep, excepting that the constant presence of the herder is not necessary. Many goat men turn the goats out of the pens in the early morning, sending a dog with them to keep away wild animals. During the day the herder rides out to the herd once or twice, and notes the direction in which they are feeding. As a general thing, if they are allowed to graze alone, the goats will travel too fast and cover too much country, which is injurious to the range as well as to the animals. Careful herders remain with their goats and check this tendency to travel.

The necessary equipment for goats is somewhat similar to that of sheep raising, it being absolutely necessary that proper sheds should be furnished to shelter the goats during wet weather, as they are very susceptible to moisture.

Contrary to general belief, no domestic animal is more fastidious as to its food than the Angora. When fed hay or other artificial foods, every care must be taken to keep it away from the mud and dirt, as they will refuse to touch any food which is soiled or trampled into the ground. Muddy or foul drinking water will not answer for Angoras, and fresh water must be furnished if they are to do well either on the range or in feed lots.

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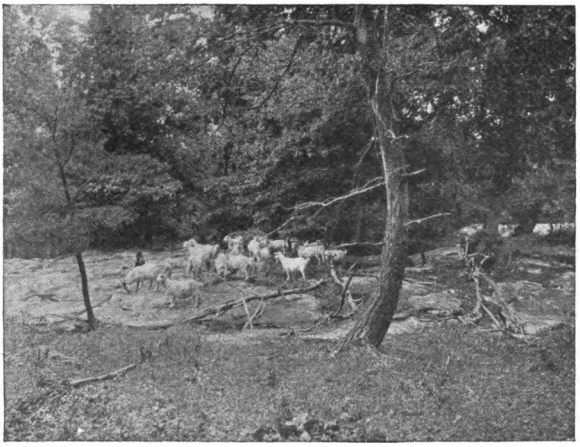
Angoras will always endeavor to find shelter on the approach of a storm and must have sheds under which to creep during stormy weather. As long as it is clear and cold, or the snow is dry, they are comfortable and remain out; but with their long, open fleece they are soon soaked if out in the rain and are seriously affected by the moisture on their bodies.

Angoras require plenty of air and light, and all sheds provided must be open as much as possible and still keep out the rain or snow. Their pens should never be so located as to become muddy, for the long, silky fleece will pick up a great weight of mud, which not only burdens the animal but stains and injures the fleece.

Wet and swampy land, wherever it may be, is unsuitable for Angoras. The native home of all goats is upon the high hills and mountains and their preference for altitudes is still manifested by their ascending to the highest available point. Well-drained land and pure water are very essential for the health of the flock.



Courtesy of the Southern Railway Company.

ANGORAS IN TENNESSEE.

So far as temperatures are concerned the Angora should flourish in any part of the United States. In Turkey and South Africa the ranges in temperature are almost if not quite as great as those of the United States. It is claimed that the coldest weather will not affect them, provided it is dry. In Montana the goats are undaunted by the heavy snowfalls so long as they have a dry place for the night.

In Texas, New Mexico, and Arizona the high temperatures make it necesarry to shear the goats twice a year but the heat has apparently no ill effects upon the health of the flocks.

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The fact that these conditions are common to considerable portions of this country, and that flocks of Angoras are to be found in almost every State, would indicate that the country as a whole is fairly well adapted to the Angora industry. However, a closer scrutiny of the conditions will show that some sections are especially favored and that the industry will probably always be largely confined to these. The large areas of new lands, the comparative low values of these, and the almost ideal climate have combined to create and maintain the industry in the Willamette Valley and the surrounding country, and the great amount of cheap range lands in Texas, Arizona, and New Mexico has fostered it in the Southwest.

COST OF LABOR.

The labor cost is approximately that of sheep in the same region, the number of men employed per thousand being about the same. While more herders are required for goats, owing to the fact that they do not thrive well in large bands, there is a very decided saving in other labor as compared with sheep, which about balances the labor costs.

The land upon which goats thrive best being generally useless for any other domestic animals, its actual or rental value is much below the average for sheep or cattle, although on the various national forests practically the same fees are charged for goats as for sheep. The total average yearly cost for grazing for one goat is about the same or somewhat less than the cost for one sheep in the same region.

These figures are, of course, for range-raised goats and do not apply to those which are raised in small flocks upon farms or within small pastures.

NUMBER PER ACRE.

Regarding the number of goats that can be pastured per acre, only general figures can be given. The soil, length of pasture season, the climate and whether the pasture is to be permanent or the goats turned in merely to clean up the brush are some of the factors deciding this. There are sections unsuitable for cultivating purposes where it might be desirable to pasture the goats year after year. Eating off the browse too closely would kill it, hence it is desirable under these conditions to have several fields that are pastured for short periods in rotation. Even then the goats will often peel the brush and gradually destroy it.

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For cleaning up brush land for other agricultural purposes from two to five goats per acre from two to four years will usually do the work. It has been asserted that the Angora can eat all kinds of poisonous plants without ill effects. They naturally feed upon a wide variety of vegetation, browsing a leaf here and another there and the amount of the poisonous plants consumed at any one time is usually small. No bad results would be likely under these conditions. There are other records of where hungry goats have been turned in upon fields containing little else than poisonous plants and of large numbers dying because of having eaten heavily of them. This has been found true of the laurel plant especially. Green brier has also been found objectionable but from another standpoint. This applies especially to goats with considerable length of fleece. They become entangled among the vines and frequently die, being unable to free themselves.

BROWSING HABIT.

The browsing habit of the goat makes them available on large areas of land where other domestic animals would not find sufficient feed. Goats relish and thrive on all manner of browses; on leaves, shrubs, and small trees; and moderate amounts of weeds and grass. Contrary to the general opinion, goats will not do well on brush alone, although a large part of their food is browse. Their liking for browsing has led to goats being introduced in many States solely for the purpose of clearing the land of brush and bringing it into pasturage. This same liking for browsing has caused their exclusion from many parts of the national forests throughout the West and on watersheds where it was desirable to protect the brushy cover in order to prevent erosion and the filling up by silt of the reservoirs for water supply either for cities or agricultural purposes.

In order to keep the fire breaks on the southern California forest reserves clear of weeds, an ingenious plan has been put into operation which will save the Government thousands of dollars and incidentally provide forage for large herds of Angora goats. The plan was originated by Forest Supervisor R. H. Charlton, of Los Angeles, and provides for free grazing for a herd of 600 goats on the reserve. They were shipped into the State from Arizona and allowed to roam at will over the parts of the range where their services are required. Their help to the forest rangers is in keeping down the growth of weeds, grass and small shrubs on the strips of cleared land, known as fire breaks, which follow the ridges through the forest and serve to check the spreading of forest fires. These fire breaks are of little value unless all such growth is kept down, as the weeds and grass dry up in California summers and would carry the flames across

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the clearings. The goats feed close, keeping the fire breaks bare of vegetation, and thus do the work of gangs of laborers. In this way the Government's pay roll is kept down, while the owners of the goats are provided with free grazing for their herds.

CLEARING BRUSH LAND.

From the observations made of the effect of goat browsing on an area, consisting of approximately 120 acres of patented land in the Wind River Valley, Washington, within the exterior boundaries of the Columbia National Forest, C. S. Judd "is led to believe that goats are a most efficient means of clearing areas of brush land when properly confined to the areas by suitable fencing.

Before the goats were placed on the area the ground in places was covered with a dense mat of wild blackberry vines. In fact, this was a favorite picking ground for the near-by settlers. Clumps of vine maple and dogwood sprouts from 6 inches to 5 feet high were quite evenly scattered over most of the area. Here and there young seedling willow and hazel bushes grew singly, and in the northwest portion of the area were Douglas fir seedlings up to 7 feet in height which the second fire had not destroyed. The goats have been on the area now for 16 months, and have browsed on the vegetation all of this time except when the depth of snow made this impossible. Their efficacy in clearing and keeping the land clear of brush is certain.

The following is a list of species on which the goats will browse in the order of preference, as nearly as could be determined:

1. Fern
2. Vine maple
3. Dogwood
4. Elder
5. Willow
6. Red Huckleberry
7. Wild pea
8. Thimbleberry
9. Hardhack
10. Alder
11. Rasberry
12. Blackberry
13. Oregon grape
14. Salal
15. Hazel
16. Black cottonwood
17. Wild rose
18. Wild cherry
19. Fireweed
20. Douglas fir
21. Western hemlock
22. Western yew

In addition to these the goats have been caught in the act of nibbling the bark of the apple, pear and cherry trees.

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Half of the clumps of vine maple and dogwood sprouts, the most abundant shrubs on the area, were killed outright by browsing. and on other clumps the tips of 3-year-old sprouts have been nibbled clean off and the sprouts have died down as much as 24 inches. Tips of dogwood branches 8 feet above the ground have been nibbled by the goats, and alder, willow and dogwood trunks from 2 to 3 inches in diameter have been completely girdled by the chisel-like teeth of these animals. On an area of three acres around the barn there is not a living shrub in sight.

The goats will not touch Douglas fir unless hard pressed for food, but at times they must have been very hungry, for Douglas fir seedlings as tall as 6 feet were discovered entirely stripped of every leaf, and branches as high as 7 feet have been nipped off. The leaders and side branches of smaller Douglas fir have been nipped clean and many have thus been killed outright.

The only species discovered which it is certain the goats should not eat is the wild parsnip. This is poisonous, and in a number of instances has proved fatal.—From "Proceedings Society of American Foresters," Vol. 6, No. 1. 1911.

IDLE AND WASTE LAND.

While goats have been utilized as brushwood destroyers to a certain extent in various sections of our country, their full value for this purpose has not been generally recognized. There are millions of acres of unproductive land in the United States, which by the use of the goat might be cleared most economically, and thus made productive.

The United States, excluding our foreign possessions, contains approximately 1,900,000,000 acres, of which about 60 per cent, or 1,140,000,000 acres was tillable according to estimates made by the Department of Agriculture in January, 1914. This includes land already under cultivation by means of the plow, and that which in the future may be brought under cultivation by clearing, drainage, irrigation, etc.

Of the entire acreage 361,000,000 acres, or 19 per cent., was estimated to be non-tillable, but valuable for pasture or for fruits. Only 21 per cent, or 399,000,000 acres was estimated to be of no use for agriculture either now or in the future.

Of the 1,140,000,000 acres of tillable land only 311,000,000 was in crops according to the census of 1909, while 829,000,000 was not in use.

It is estimated that there are 3,000,000 acres of logged-off lands in the Northwest that could be profitably converted into homesteads. Already many fields in this section have been

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enabled to smile under bountiful harvests made possible by the repeated browsing off of the brush by the Angora. Many settlers who have developed farms in this section are loud in their praises of the Angoras and attritbute their rapid progress to the use of this animal.

Regarding this, W. A. Heather writes as follows: "There is an immense amount of waste land, not only in the West, but

"AND BEHIND THEM (THE LUMBERMEN) A DESOLATE WILDERNESS; YEA, AND NOTHING SHALL ESCAPE THEM."—*Joel ii*, 3.

all through the South and East, that is especially adapted to the raising of Angora goats, and so far as the human mind can see at the present time, is absolutely useless for any other purpose; these lands have been lying idle and useless for untold ages begging to be put to some use that would be of benefit to the human family and less of a reproach to the intelligence of the American people. These lands if properly used for this purpose, would in the course of time, yield untold wealth to the owners and be a source of immense revenue to the government."

"It might be just as well for Uncle Sam to take a little interest in and have a word to say about a proposition that is

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loaded with such immense future possibilities as the Angora goat industry of the United States is. Our preachers and lawyers and doctors and statesmen and educators have for years been preaching the doctrine of first principles and getting back to the land to the end that our future generations may not be compelled to swelter and live and die in the pestilential slums of our great cities, and at the same time in the humble Angora goat they have neglected an argument that would perhaps induce more people to leave the congested city than any other that they could possibly advance, the opportunity that the Angora goat affords to those desirous of leaving the crowded city and engaging in pastoral pursuits is almost unlimited, there are untold millions of acres of waste lands and abandoned farms in these United States, the value of which is unknown to the people of the great cities, and which could be quickly and cheaply converted into prosperous and thriving Angora goat ranches that would yield an easy living to the owner and a competence and interest in life to his children and grandchildren. There is no class of live stock that is more domestic or easily handled or that shows more response to kind treatment from his master than the Angora goat, he is inoffensive and gentle to a degree that is seldom attained by any other kind of stock."

A CRYING NEED.

"It seems to me that there is a crying need that our Bureau of Animal Industry issue a new bulletin of complete and accurate information on this subject and give it a wide distribution, and that our national law makers are furnished with some information from first hands that will enable them to know just what the needs of the industry are, and this they can get from neither the foreigner or manufacturer; he does not know, and if he did he would not tell."—From the "Shepherd's Journal, June, 1911.

Black, in his "New Industry," also says: "The brush question is a most serious one in many of our states. As long as the land can be kept under cultivation brush can be kept down, but when it is once thrown open to pasture, briars and brush of all description begin to grow, and soon cover the entire surface."

"The goat is the best land grubber on earth. He will not only destroy the brush, but will enrich and trample the soil more thoroughly than any other animal can possibly do, which is so essential in producing a fine stand of blue grass; and he will thoroughly remove all noxious weeds as well."

"Common goats will answer the purpose we need them for, even better than the Angora, from the fact that they are stronger bodied, and are not burdened with long hair, which is often torn out on the brush when feeding."

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Courtesy Chief of Bureau of Animal Industry. From the 28th An. Rep. Bur. Animal Industry, U. S. Dept. Agr., 1911.

A HERD OF MILCH GOATS IN TEXAS.

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THE COMMON GOAT.

The term "Common Goat" is generally applied to all goats not belonging to either the Angora or the Milch breeds. They consist principally of nondescript animals, of all sorts, sizes and colors, a considerable percentage having long hair. The long-haired common goats, however, are suitable neither for the production of skins, nor as foundation stock for grade Angoras.

The Native or Common goat, as yet, plays but an infinitesemal part as a factor in the animal industries of this country.

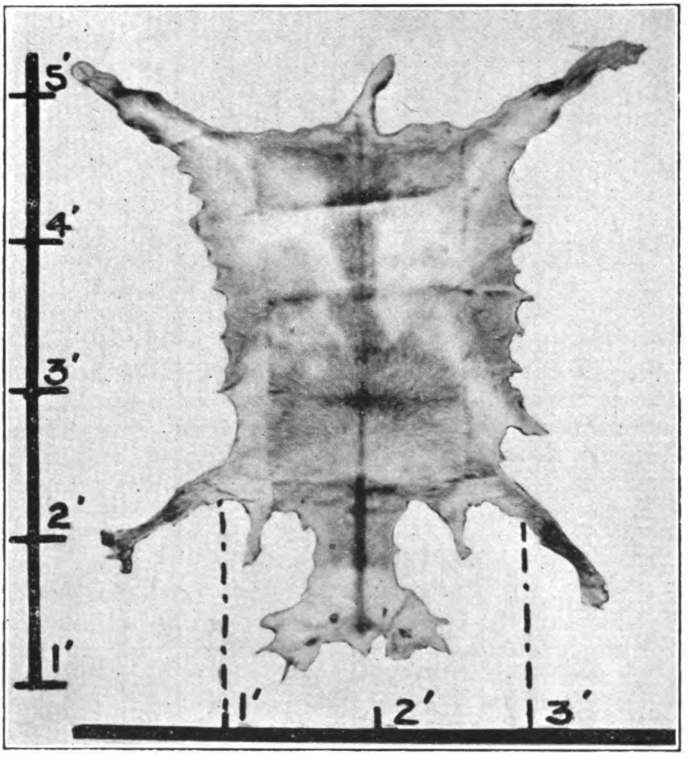

Photo. by W. B. Simons.

SKIN OF MALE KID, 7 MONTHS OLD, FROM VENEZUELA, S. A.

GOATSKINS.

While practically all of the goat-skins entering into the commerce and manufacture of this country are imported, the extent and value of these importations, as shown by the following table, are not generally known nor appreciated.

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The following tables, showing the value of Goatskins imported during the fiscal years ending June 30, 1905-1914 inclusive; and Glazed Kid exported during the same years, have been compiled from statistics obtained from the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce.

TABLE No. 1.—IMPORTS OF GOATSKINS (FREE.) —YEARS ENDING JUNE 30, 1905-1914.

IMPORTED FROM	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Europe	$ 7,070,847	$ 7,354,564	$ 7,230,045	$ 2,548,019	$ 5,626,481	$ 5,570,675	$ 3,061,809	$ 5,297,106	$ 5,513,529	$ 4,507,858
N. America	2,536,391	2,968,560	3,272,323	2,344,589	2,773,579	3,153,425	2,538,257	2,358,546	2,359,102	1,811,286
S. America	4,086,004	3,748,422	4,110,449	2,785,786	4,384,795	4,853,882	3,548,126	4,676,665	3,780,728	3,959,925
Asia	12,169,113	16,278,308	15,548,087	9,006,660	12,429,345	15,915,239	11,452,872	10,268,298	12,446,398	11,223,154
Oceania	13	3,047	2,878	791	9,211	8,445		638	12,346	9,286
Africa	1,083,353	1,432,008	1,551,507	639,281	800,503	1,335,924	1,159,493	695,302	670,314	679,754
Total	$26,945,721	$31,773,909	$31,715,298	$17,325,126	$26,023,914	$30,837,590	$21,760,557	$23,296,555	$24,790,417	$22,191,263

TABLE No. 2.—EXPORTS OF GLAZED KID—YEARS ENDING JUNE 30, 1905-1914.

EXPORTED TO	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Europe	$ 1,449,371	$ 1,768,388	$ 4,116,128	$ 2,543,221	$ 3,174,439	$ 9,278,989	$14,021,676	$15,493,340	$15,048,033	$13,870,420
N. America	55,828	100,499	118,498	106,917	77,901	317,774	718,715	882,915	939,303	922,352
S. America	13,500	23,404	81,166	68,437	43,817	716,478	1,414,590	2,297,587	2,864,569	1,496,820
Asia	798		3,413	1,048	4,655	23,445	49,989	77,570	90,194	69,856
Oceania	55,546	27,875	50,382	178,088	272,148	580,455	816,280	827,627	616,823	438,882
Africa	1,161	2,264		258	949	9,114	20,017	16,278	14,587	12,654
Total	$ 1,576,204	$ 1,922,430	$ 4,369,587	$ 2,897,969	$ 3,573,909	$10,926,255	$17,041,267	$19,595,317	$19,573,509	$16,810,984

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These foreign goat-skins were brought into this country free of duty, doubtless owing to the great demand for them, and to the fact that they do not come into competition with a domestic industry of sufficient importance to be deemed worthy of the consideration of Congress.

According to A. H. Lockwood, who in his comprehensive text-book "Hides and Skins" says: "The skin or pelt of the common goat is a product which, outside of the trade, is not generally recognized at its true value. As a raw material it rates in importance among the chief imports into this country."

"The United States produces only a small proportion of the vast number of skins which are daily put into process, by manufacturers who specialize in transforming the raw goatskin into its various finished products."

"The importance of the goat as a leather producing animal should be considered in estimating the world's supply of raw material. The best available statistics tell us that there are 100,957,649 goats in the world, of which less than two millions are in the United States."

"And yet our morocco manufacturers have achieved a commanding position in the manufacture of glazed kid. They are now exporting glazed kid to the amount of about eighteen million dollars a year with what may be termed the raw material situation against them."

F. W. La Croix, connected with the Pfister & Vogel Leather Co., of Milwaukee, Wis., in a letter to the author writes that "the best goatskins come from the short haired animals. If an improvement in the size and quality of goats can be brought about it will make their skins more valuable. There is a great difference in the value of skins from various parts of the world on account of the difference in the fineness of the grain, and freedom from scratches, insect bites, etc."

"Goatskins are of very high value in the leather industry, especially in the United States, where great quantities of these skins are imported from all over the world to tan into glazed kid for shoes, morocco for book bindings, etc., and exported abroad again."

"Glazed kid is made from goatskins, not from the skins of young kids as this trade name may seem to imply. Kid skins are too soft and tender for shoes. They make very fine glove leather and are chiefly used for this purpose in Europe. Glazed kid is excellently adapted for shoes as it is very strong and durable. It takes a high polish, and is considerably softer than calf or cow hide. It is especially suitable for hot weather wear on account of its porous texture."

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A letter from Frank L. Thomson, President of the Baum Leather Co., Philadelphia, Pa., dated Nov. 30, 1914, informs us that "the amount of raw skins imported will be largely decreased on account of the war, as but few countries are available today, where skins can be bought and shipped, and shipments from these are uncertain on account of the shortage of steamships."

"Really the only open markets are East India and the English possessions in Arabia, with South America and a few skins from Mexico. All the rest of Europe and Asia is closed, and it is impossible to bring any skins out. China is another country, however, from which about four to five million goatskins a year are shipped, but this market is just open and no idea can, as yet, be formed as to the quantity available this year."

"The foreign market today for glazed kid, outside of England, is very quiet, as the countries in which American glazed kid was selling so freely, Austria, Belgium, Germany and Russia are cut off on account of the war conditions."

GOATS' FLESH AS FOOD.

"Thou shalt not eat any abominable thing. These are the beasts which ye shall eat: the ox, the sheep, and the goat."—*Deuteronomy xiv.*, 3, 4.

With the beef and mutton supply in this country greatly diminished, and all meat exceedingly dear, it is an economic, as well as a gastronomic crime to deny the flesh of the goat a place on our tables. This is with us an instance of popular palate prejudice. We permit these unreasonable prejudices to influence our diet, with the result that valuable foodstuffs are not utilized as they should be.

In many parts of the world, goats' flesh has been eaten by men for time out of mind and esteemed as of especial tenderness and savor. When the angel visited him: "Gideon went in, and made ready a kid." Judges 6:19. The elder brother of the prodigal complained to his father, it will be remembered, that "thou never gavest me a kid, that I might make merry with my friends." Luke 15:29.

Kid is as good as lamb, if not better. Most of us will not wittingly eat goats' flesh, and turn up our noses at the mere suggestion. We will, however, eat roast kid with mint sauce and smack our lips, if only it is served as roti d' agneau sauce a la menthe.

"The man who contemplates entering upon the rearing of goats need no longer doubt the existence of a market for his meat. Yet no goats' flesh is sold in this country under its true name. The explanation of this strange disappearance of the goats on the killing floor, lies in the fact that the hind quarters are sold as

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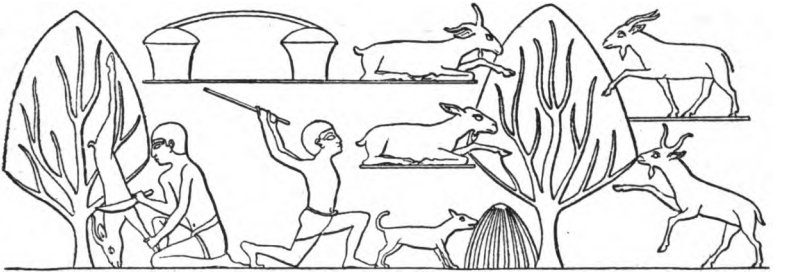
mutton or lamb, while the fore quarters go into cans or sausage. This is rather close to a fraud, but it will go on unless stopped by law."

"Yet, that goats' flesh is a fine meat the experience of centuries abundantly attests. Why do we insist that when we buy the juicy leg of a goat or kid it shall be called mutton or lamb?"—Editorial comment, "Farm and Fireside," August 15, 1914.



Copied from Erman.

FIG. 5—"GO NOW TO THE FLOCK, AND FETCH ME FROM THENCE TWO GOOD KIDS OF THE GOATS; AND I WILL MAKE THEM SAVORY FOOD FOR THY FATHER, SUCH AS HE LOVETH."
—*Genesis xxvii, 9.*

"Receipts of goats at Kansas City were much greater this year than ever before. A large number were brought in from Mexico." (During the fiscal year 1914, 257,129 goats were brought into this country through the Mexican border ports.) "Different estimates place the number received here at 50,000 head."

"Government regulations provide that goat carcasses shall be stamped as goat meat in packing houses. Packers sell the goat meat wherever there is a demand for cheap meat, a great deal of it going to the Pennsylvania coal mining regions, and to the large cities of the country, especially those having a large foreign population, New York leading, Baltimore also good."

"Packers say that kid goat meat has some vogue among epicures, due to the meat being more firm than lamb meat, and of a different flavor."—Letter from W. H. Weed, Assistant General Manager, The Kansas City Stock Yards Company of Missouri, November 21, 1914.

"At various intervals the "Chicago Live Stock World" has within the past year called attention to the excellent prices fat goats have brought. Whenever matured muttons are scarce, as has been the case for several months, goats in good flesh condition find a high market. The Southwest, the source of the most pro-

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lific supply of goats, has shipped thousands in good flesh condition to Kansas City, Chicago and other markets this year and they sold at very remunerative prices to the producers."

"At periods when fat wether sheep have been selling up to 6c per lb. on this market, fat goats of aged class have readily commanded $4 to $4.25 per cwt., while there has been a market for thin aged goats for canning and brush cleaning purposes right along between $3 to $3.75. Yearling goats of fat class have sold up to $5 and better, and kids as high as $5.50 to $6.25 for slaughter."

"Chicago and other centers of large population provide an outlet for a generous quantity of goat meat which is more highly prized, by a large percentage of the Greek, Italian and Servian population, than mutton."—Letter from E. W. Baker, editor "The Chicago Live Stock World," October 15, 1914.

THE MATTER OF FERTILIZER.

Among the little thought of, but never-the-less vital facts, which people of the United States are having forced upon their attention by the "great war," is the past and present dependence of this country on Europe for a large portion of its commercial fertilizer ingredients. This dependence on the outside world for our fertilizing materials does not contribute to the development of a prosperous or even a self-sustaining agriculture. In the course of time the necessity for the production and conservation of home-made fertilizers, with which to maintain soil fertility will become more and more apparent. In the east, more particularly in the southeastern states, where most of the commercial fertilizer is used, there is a vast amount of idle or waste land which might be made profitable by utilizing the goat.

It has been estimated by careful observers that the value of the manure produced by one sheep, in regions where manures are purchased at commercial prices, is from $2 to $3.30 per year. It is also stated that the goat produces more manure than the sheep, and that while sheep manure runs higher in ammonia, it does not contain the amount of potash or phosphoric acid found in goat manure. If goats are pastured upon land that is later to be used for the production of vegetables, grain, or grass, its fertility will be greatly enhanced. The influence of a very few animals is felt over a considerable area, and there is a permanency in the effect of the manure upon the soil.

Angora goats have been given much well-deserved credit for destroying weeds and brushwood upon cut-over land, while at the same time depositing a good coating of fertilizer. Common goats, or Milch goats, will do as well, if not better, if the opportunity is afforded them. This clearing of the land and fertilizing the

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soil, aided by the sun's free access, have caused fields of blue grass to spring up where only weeds and bushes grew before. If, however, the manure is produced for commercial purposes the goats must be confined at night in a barn, or in a small inclosure or corral where the manure can be collected and saved.

COMMERCIAL FERTILIZER.

Concerning the value of goats' manure as a commercial fertilizer, the writer is indebted to Okle C. Painter, President and Manager of the E. O. Painter Fertilizer Company, Jacksonville, Florida, for the following information:

"Goat manure when it is free from straw and trash and thoroughly decomposed, dried and pulverized, is a natural organic fertilizer, containing every element of plant food. In addition to the humus and bacteria, which are so essential in the successful culture of flowering plants, shrubbery and nursery-stock it contains well balanced proportions of plant food. By actual analysis we have found the manure contains 1¾ to 2¾% ammonia, 3½ to 4½% potash and 1 to 2% phosphoric acid. As will be seen it is within itself a complete fertilizer, although we do not advocate it as such. We are selling it as a soil builder—something that adds humus to the soil. If you know anything of the conditions in Florida you know our soil is very deficient in humus in most places. In order to make a fertilizer that will produce a good crop we must add the humus which is now lacking. One of the best things we have found for this particular purpose is goat manure because it not only adds humus, but has fertilizer qualities as well.

"In South America we find at present the main source of supply in commercial quantities. The goats are herded at night into corrals and the manure taken from these inclosures is good, clean stuff, free from grass and grass seeds which is usually to be found in stable manure in this country. Unfortunately as the source of supply is so far away, we have great difficulty in obtaining as much as we want and when we want it. Transportation facilities there are very crude and it is quite a task to get the natives to bring the manure to the coast.

"As to the demand, when I tell you that the first shipment of 1,800 tons was disposed of within thirty days after its arrival, you may form some idea of how eager the citrous growers in this state are for this fertilizer. We cannot supply the demand, although we do not extensively advertise it, and charge $20.00 per ton. This fertilizer is used to a great extent in the celery fields around Sanford, Florida, and in the tomato fields on the East Coast of the same state, it is also successfully used by the growers of citrus fruits and pineapples.

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"I do not know of anything that surpasses goat manure for top crops, that is for crops above ground. It is not so good for potatoes and beets or vegetables of that kind, as it has a tendency to force tops and the fruit is lacking. It enriches the soil, however, and if ground crops are planted on it a second year the results will be splendid. One reason why the value of goat manure has not been known as a fertilizer in the United States is probably due to the fact that very little of it has been used. Up to 1910 its value was unknown in Florida as a fertilizer, that is it was not handled by the fertilizer manufacturers or dealers as a commercial product."

Elmer F. Dwyer, a practical goat keeper, in giving his experience in producing and selling goat's manure, says in the July, 1914, issue of "The American Standard Milch Goat Keeper," of which magazine he is the editor, that he "turned salesman one afternoon and visited about a dozen green-house plants north of Boston, Mass., with the idea of determining what could be done with goat and sheep manure. Some of these green-house men grow vegetables and others grow flowers. Only one of the former thought favorably of trying it, the rest believing that it was too expensive for vegetables. About half of the flower growers had used commercial sheep manure.

"I sold two and a half tons in lots of a hundred pounds to half a ton, at thirty dollars a ton. Most of the men who made a trial of it sent in orders for more within six months and one man took four tons. This man specializes on violets, pansies and sweet peas and the manure produced flowers that won first prizes at the Boston and New York shows. The total sales resulting from the afternoon's work, within the year, amounted to eight and a half tons, or $255.00.

"To meet the flower grower's requirements the manure should be ground fine. I use a beater which was originally built for thrashing grain and grass seed, with all the teeth in and set for the finest work. The machine is run with a three-horse power, three-phase, alternating current motor. Goat manure well ground is very convenient to handle and distribute among plants with the hands. It can also be dissolved readily in water and applied as a liquid, and will show results in three days. The peculiarity of goat and sheep manure is that the fertilizing elements are more available than with other kinds.

"For green-house work it should be kept free from hay seeds, but for lawns the seeds do no particular harm. The straight manure is probably quite free from seeds and it is said that goats and sheep grind their feed so fine that all seeds are destroyed. It is difficult, however, to keep the seeds from hay entirely out of the manure. One precaution is to cut all hay early before the seeds ripen. This is the proper time to cut hay. The rich-

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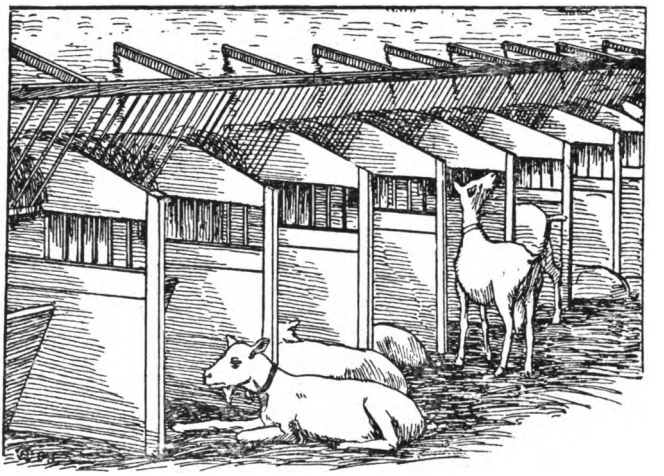
est fertilizer comes from pens in which the goats have been kept all winter and where the manure is allowed to accumulate. In pens of this kind some litter must be used as bedding, especially at the beginning of the season in order to keep the floor dry. Later, after a good absorbent mat has accumulated and freezing weather has arrived the floor will remain quite dry if the animals are not too crowded.



Copied from Johannes Schneider.

INTERIOR OF A GERMAN GOAT BARN.

"When wintering goats by this method it is a good plan to construct sleeping shelves arranged like a flight of steps or the bleacher at a baseball park. This will ensure the goats a dry place to sleep above any ammoniacial gases or carbon dioxide which may form on the surface of the floor. Hay thrown into such a pen will be trampled under foot and will spoil the appearance of the manure, and as little as possible should be used. Hay cannot be screened out after grinding, as readily as might be supposed. Dry peat and leaves are far superior to hay for bedding purposes. If a side of the pen is formed of upright boards about three inches apart and then the spaces between the boards are enlarged sufficiently to allow the goats to pass their heads through at a height of about two feet from the floor and the goats are fed outside the pen very little hay will find its way inside. In order for a goat to move backward and draw hay inside the pen, it must first lift its head to the height of the enlarged part and this it is not apt to do until through feeding. This same idea can be applied to stalls.

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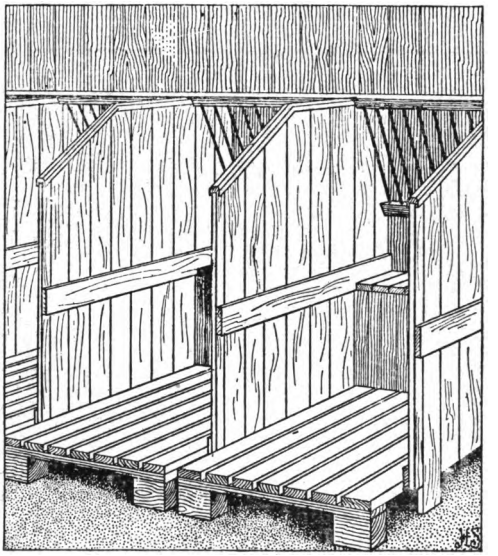
"In stall feeding milking goats where the stalls are cleaned out each day, the manure can be kept in good order and comparatively free from hay, but the manure is not as rich as that from the pens as not all the liquid is absorbed. Some use slats or gratings for a floor to the stalls and allow several days' manure to accumulate under the slats.



Copied from Bryan Hook.

STALLS WITH GRATING FLOORS.

"The stalls can be kept much cleaner when no gratings are used and when dry ground peat or sawdust is used as an absorbent. From the standpoint of the quality of the fertilizer being produced the peat is to be preferred, but the sawdust makes the cleanest looking house. The sawdust is more noticeable in the manure and injures its quality. The peat has a fertilizing value and supplies humus and nitrogen. Some peat is slightly acid and of itself, does not show good results as a fertilizer, but the alkaline goat manure will correct this condition.

"Goat manure should be stored under cover. The fertilizing elements are very soluble and the manure will lose much of its value if exposed to the weather. This is especially true of manure which has been ground. It is advisable to let it lay in the pens undisturbed until wanted. As soon as it is dug up it begins to heat. If it is run through the mill it will become hotter than would be comfortable for the hand. If bagged in burlap

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bags it will destroy the bags in a few days, especially if the bags are piled.

"In the pens it will keep almost indefinitely, but as soon as it is picked up it should be ground and delivered without delay. If left in piles without grinding it is apt to fire-fang and loose ammonia. Goat manure is especially strong in nitrogen, which is the same as ammonia.

"The vegetable grower referred to above, came to the farm recently and inquired if I did not have some manure to sell this spring? He was answered that I had and he said that 'You did not come around,' and seemed to feel slighted that I had not called again for an order. He was informed that I thought that he would send in his order if he found that it paid him to use the manure. He bought two tons. The sample lot he purchased was spread in one half of a green house in which cucumbers were grown. This half of the house continued to produce superior cucumbers to the other half, no matter what treatment was given the latter. A trial convinced this man that the manure was worth the price, even for vegetables.

"Of two samples of manure, one might be worth twice as much as the other, according to the manner in which it has been taken care of. No text book analysis will indicate the real value of your product and because I can sell mine for thirty dollars a ton is no proof that all goat manure is worth the same price.

"The kind taken from the pens must be used with considerable care or it will burn the plants, if too much of it is used. I understand that three hundred pounds is sufficient for one application in a house a hundred feet long and forty wide.

"Undoubtedly, it is the best all around fertilizer for flower growing. It seems to contain just the right combination of elements to produce the blooms. Also, it is convenient and cleanly to handle and mixes with the soil readily.

"The sheep manures on the market come from the stock yards and sheep cars, the slaughter houses and wool cleaning establishments. The first mentioned is considered the best and sells, by the ton, for about thirty-two dollars. The manure from the slaughter houses sells for twenty-eight dollars. Samples which the writer has examined evidently contained the contents of the sheeps' stomachs and with this adulteration of course the manure would be less valuable and would also contain seeds. The manure from the wool cleaners consists of the tags, so called, or the manure which clings to the wool. This kind has had most of its fertilizing elements leached out by the weather. It sells for about fifteen dollars a ton.

"The best of these commercial manures is not as valuable as the goat keeper can produce. At thirty dollars a ton you would be giving good value as compared with market manures in the same class."

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THE MILCH GOAT.

"And there will be goats' milk enough for thy food, for the food of thy household, and maintenance for thy maidens."—*Proverbs xxvii, 26, 27.*

The Milch Goat also has apparently not been considered seriously as worthy of a place among our animal industries. This may be largely owing to the fact that our native goats have been aimlessly and carelessly bred, and without sufficient regard to the production of milk. They are consequently ill-suited for dairy purposes. The nondescript and undersized little "Nanny-goats" with small udders, often seen tethered or running loose on the commons or vacant lots in our towns and cities, give, as a rule, but little milk and produce inferior offspring. Unfortunately, it is from such mongrel animals that an estimate of the whole species is generally formed.

In Switzerland, however, a process of careful selection and breeding, carried on through many centuries, has produced Milch goats that are probably the most efficient milk-producing creatures, for their size, in existence. The best known of these breeds in this country are the Saanen, a hornless, short-haired white or cream-colored goat; and the Toggenburg, a hornless, short-haired, fawn-colored goat, peculiarly marked with a white line down each side of the face. The legs are also covered up to the knees with white hair. Both of these breeds, which are much larger than our common goats, have a deer-like shape and carriage, and are like Jersey cattle, in that they are somewhat lean and bony, and seem to throw all the strength of their constitutions into the production of milk.

In England, also, under the fostering care of the British Goat Society, Milch goat breeding has been entered upon as systematically as any other branch of stock raising, the same strictness in regard to registry being required.

At various periods in the past, specimens of foreign breeds of Milch goats were brought to the United States, some of them possibly even before the Davis importation of Angoras in 1849. Dr. John Bachman, the naturalist, in a report made to the Southern Central Agricultural Association, regarding the Davis Angoras, which was published in 1857, speaks of: "The several large breeds, such as the Scind, the Maltese and the Swiss goats, which were from time to time introduced as milking animals into this country."

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In 1863, Israel S. Diehl wrote concerning an "Assyrian" goat in the possession of General J. S. Gee, at Brownsville, Pa., that gave a gallon of milk per day after the weaning of its kid. Diehl also mentioned having in his own possession at that time a similar goat, together with some Maltese and Cachmere grades, and further said that "among the most valuable milkers we have the Maltese, the Swiss, the Assyrian, the Syrian, the Scinde, the Spanish and the Welsh goats."

Unfortunately there was no apparent effort made to keep the blood of these breeds pure. Dr. Bachman, indeed, said regarding the imported Milch goats, mentioned in his report referred to above, that they "were after a period neglected."

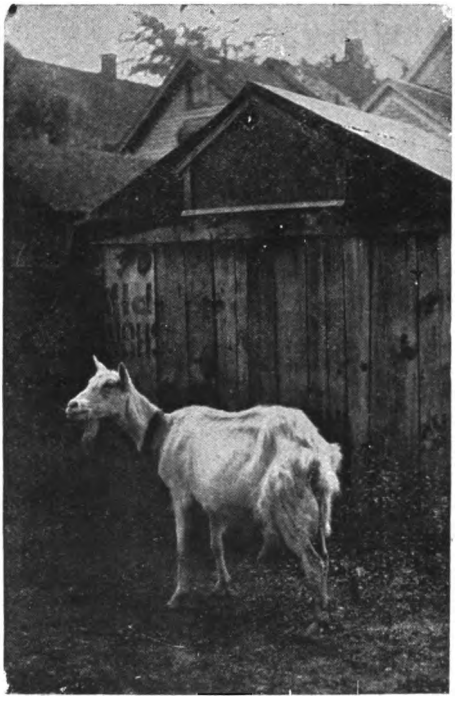

Photo by R, R. McGeorge.

BABETTE, AN IMPORTED SAANEN MILCH GOAT.

In more recent years, in 1893, and notably in 1904, 1905 and 1906, importations of Saanens, Toggenburgs, and Schwartzenburg-Guggisbergers were made. These goats or their decendents, together with others since imported, are now in the possession of breeders and fanciers, located in widely separated sections of

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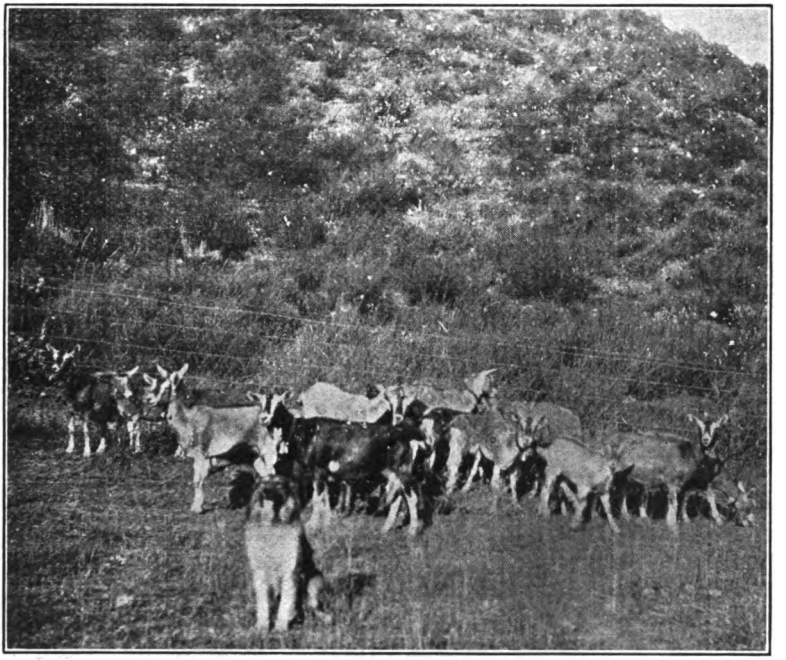
the country, who, in the majority of cases, have gone into the industry, or fancy, on a small scale. The importance of every possible effort being made to keep the blood of these breeds pure, can scarcely be overestimated, nor too strenuously dwelt upon, when one takes into consideration how great will be the benefit resulting therefrom, not only to the individual breeder, but for the advancement in this country of the industry in general.



Courtesy of Winthrop Howland.

GROUP OF SWISS TOGGENBURG DOES AT RANCHO EL CHIVAR.

Both the Saanen and the Toggenburg breeds are well adapted to our climate. They breed true to type and have a remarkable power of transmitting their characteristics to their offspring (many half-breed animals showing all of the distinguishing peculiarities of the race), they are therefore particularly valuable for the purpose of improving our native stock. By crossing the males of these large-sized, short-haired, deep-milking breeds with short-haired Common does, selected for their milking qualities, and for size and constitution, native breeds of large, hardy goats might in a comparatively short period of time be established. These would prove commercially valuable when used either for dairying, for the production of skins, for destroy

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ing brushwood, or as foundation stock for breeding grade Angoras, instead of the Mexican goat. The fact that the market for goat meat is constantly increasing should also be borne in mind whenever the commercial value of the animal is under consideration.

With reference to improving our native goats, Diehl said: "Here, as in all departments of stock breeding, no doubt great improvements can be made, since goats possess all the characteristics of other domestic animals. A variety of goats exist throughout our own country, collected from various countries of Europe and portions of Asia and Africa, from which the improved individuals may be selected and bred from."

With reference to breeding grade Angoras, Black says: "I knew that it would be impossible to find enough graded goats to meet the demand that was springing up all over the country, and I realized if the farmers of the United States expected to engage in the Angora goat industry they would have to begin at the bottom as we all had done, and grade up the smooth-haired goat. We have an abundance of full-blooded males to stock the entire country, but the Mexican female must be used as a foundation, if we expect to build up the industry in any reasonable time. This was the course pursued in South Africa, except that they used the Boer goat instead of the Mexican which is practically the same class of stock, strong and vigorous, with smooth hair; and it was followed in Turkey, to a large extent, as soon as the demand for Mohair exceeded the annual supply, which took place between 1860 and 1870."

DEMAND FOR MILCH GOATS.

"There is very little doubt but that there would be quite a demand for Milch goats if farmers in the neighborhood of our large towns and cities were prepared to furnish them. It often occurs that an infant is left without a mother to nourish it, and in such cases, almost any sum would be paid for a goat rather than resort to the risk attending the use of the dairyman's stuff.

"I feel sure that this branch of the industry may be made to yield very profitable returns, and in grading up a lot of common goats, a very good market can be found for the old does, after they have been used to propagate the Angora."

As it has been proved beyond refutation that human infants deprived of their mother's milk, thrive upon goat's milk better than upon that of any other animal, the importance of Milch goat dairying cannot fail to appeal, not only to parents of young children, but to physicians and to all others who have the future wellfare of our country at heart; for as Dr. William Ewart says, "good milk for infants is a national concern, since deterioration of the race and depopulation by infant mortality and by tuber-

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culosis are mainly milk questions."—From "The Lancet," London, December 12, 1906.

In this connection Spargo, in "The Common Sense of the Milk Question," says: "The neglect of the goat as a milch animal, especially as a provider of milk for infants, is very much to be deplored. The animal seems to be altogether well fitted to be the wet nurse of the human infant, much more so than the cow, and it is a great pity that ignorance concerning its habits and qualities should stand in the way of its more general employment. That an extensive use of its milk in place of that of the cow would lead to a considerable reduction in the enormous mortality from the various forms of tuberculosis which afflict infants is highly probable, indeed, practically certain. It is to be hoped that the Department of Agriculture at Washington, and the several state bureaus, will see fit to make known the truth concerning the much maligned goat, and to encourage its breeding and use for milch purposes."

"There are several reasons why goat's milk is superior to cow's milk as a substitute for breast milk in infant feeding. In the first place, while the cow is particularly subject to a specially virulent form of tuberculosis, which dread disease it is capable of acquiring from man, and of transmitting to man in its milk, through the infection of the digestive tract, the goat is practically immune from the disease."

IMMUNITY FROM TUBERCULOSIS.

The Federal Department of Agriculture inspects meats passing into interstate commerce. This meat inspection is maintained at practically every slaughtering and packing establishment of importance in the United States. During the fiscal year 1914 post-mortem inspections were made of 6,724,117 cattle. Of the 48,356 condemned, 29,738 were found to be infected wtih tuberculosis. This disease is increasing. Of 121,827 goats inspected during the same period not one was found to be so infected.

The quickness and certainty with which the government veterinary inspectors detect tuberculosis and other diseases in animals examined by them at the time of slaughter is an interesting example of developed expertness.

In the large packing houses the post-mortem inspection work is so systematized and divided that each carcass must pass the scrutiny of several inspectors, each of whom gives his entire attention to examining certain particular parts. Under this system the inspector's vision and sense of touch become so highly trained that exceedingly slight variations from the normal in organ or tissue are detected instantly. The government tag is at once affixed to all carcasses which show such variation and they are set aside for further examination by a final inspector.

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The following table, compiled by the writer, from statistics found in the Annual Reports of the Bureau of Animal Industry, U. S. Department of Agriculture, shows the number of Goats inspected at the time of slaughter by the Federal meat-inspection service, together with the number passed, and also the number condemned, since the passage of the law of June 30, 1906:

TABLE No. 3.—POST-MORTEM INSPECTIONS, FISCAL YEARS 1907-1914

Fiscal year	Total inspected	Total Passed	Con demned	CAUSES OF CONDEMNATION		
				Tubercul-osis	Other diseases	Emacia-tion
1907	52,149	52,107	42	0	42	
1908	45,953	45,920	33	0	33	
1909	69,193	69,111	82	0	82	
1910	115,811	115,585	226	0	145	81
1911	54,145	54,084	61	0	32	29
1912	63,983	63,899	84	0	55	29
1913	56,556	56,480	76	0	36	40
1914	121,827	121,081	746	0	219	527
	579,617	578,267	1,350	0	644	706

These goats were slaughtered in many different places, scattered throughout the country, and came from all sections of the United States, but mostly from the West and Southwest.

The fact that not even one tubercular goat was found, while only 1350 were condemned, 644 for disease and 706 for emaciation, out of a total of 579,617 inspected in eight years, speaks volumes in proof of the general healthfulness of the animal, and furnishes an indisputable confirmation of the claim that the goat is immune to tuberculosis.

Additional evidence, however, might easily be given, for it is true, as Spargo asserts that, "the testimony upon this point is overwhelming." The same author also declares that "if there were no other advantage in goat's milk, this immunity from the disease which scourges mankind ought to make it popular, providing that its milk proved equally as nutritious and digestible as cow's milk. If we were choosing a foster-mother or wet nurse for an infant, and there were two candidates apparently equally desirable in all other respects save this one, both being plentifully supplied with good milk, but one of them the victim of an active and malignant disease, is there any intelligent being who doubts what the choice would be? Yet, in the case of choosing an animal to be virtually the wet-nurse of the nation, we have chosen the one infected with disease, and are constantly passing on the infection to the little ones."

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MADONNA AND CHILD.

Painted by Ambrogio Lorenzetti (1275-1348).

Reduced reproduction from engraving by Timothy Cole in *Old Italian Masters*, by courtesy of The Century Co.

INFANT FEEDING.

"And the woman took the child, and nursed it. And the child grew."—*Exodus ii*, 9, 10.

Undoubtedly the only perfect food supply for the nursing baby is the mother's milk. There can be no question concerning this. It is not within the scope of this book, nor in the province of a layman, to discuss the reasons for the increasing prevalence of artificial feeding, nor in its effect upon the conservation of child life and the future welfare of the race.

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It may not be out of place, however, to call attention to the following warning, from a leading article in "The Lancet," June 14, 1914: "The increasing tendency of the young mother of the present age not to suckle her child, combined with the spread of the practice of the limitation of the number of children in the family, are menaces to the welfare both of the individual and of the nation which cannot fail to bring in their train a heavy retribution."

"Infant mortality is an injustice both to God and to man, and its causes are little short of criminal negligence," declared Dr. Thomas F. Harrington, director of school hygiene in the Boston public schools, during an address on "The Prevention of Disease Versus the Cost of Living."

"These deaths occur at the rate of one every ten seconds of time, and a baby born to-day has less chance to live for one week than has a man ninety years of age. It has less chance to live for one year than a man of eighty."

"That from eighty to ninety per cent of the infant deaths and illnesses are actually preventable, is evident from the fact that ten artificially fed infants dies to one that is nursed. Cow's milk, however pure, can never be other than dangerous as an infant diet, and it is practically never a safe substitute for the natural nourishment of an infant."

"The greatest hope of fighting successfully the present great unnecessary waste and sacrifice of human life is the establishment of a truly intelligent motherhood. More than on any other single factor, the problem depends on this."

ARTIFICIAL FEEDING.

"And she opened a bottle of milk, and gave him drink, and covered him."—*Judges iv,* 19.

The writer does not wish to be understood as recommending goat's milk in place of natural feeding. It is the general teaching of the medical profession, so far as he knows, that infants should be fed naturally. There are numerous instances, however, where this cannot be done, for there are many mothers, genuinely desirous to do their best for their infants, who, while willing, are unable to nurse them. We simply wish to lay before physicians, anxious parents and others interested in child welfare the following results of investigations and experiences with goat's milk.

In a lecture on the "Modern Combat Against Tuberculosis Amongst Children," delivered at the Medical School of the Royal Hospital for Diseases of the Chest, London, on October 17, 1912, Professor Dr. Nietner, General Secretary of the German Central Committee for the Prevention of Tuberculosis, said in part:

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"As regards the milk nutrition of infants it has been our experience in Germany for some years past that, in consequence of the increase in the number of co-operative dairies and wholesale milk industries, not only the infants in large towns but also those in rural districts suffer from insufficient nourishment. The whole milk is sent to the dairies to be utilized for cream and butter, and the children are fed with skim-milk. This should be most energetically prevented. We have recently made most strenuous efforts to encourage the keeping of goats for milk. The poor man can generally keep his own goat, and if properly cared for it will supply his children with good milk at a small cost, while the milk offers certain well-known advantages over cows' milk. Cows' milk should, of course, first be boiled."—From "The Lancet," London, November 16, 1912.

Is goat's milk as "nutritious and digestible as cow's milk"? In regard to this, Dr. William Wright says: "It is surprising also that there should be any hesitation in admitting the superiority of goats' milk over cows' milk as a food for infants. The casein of goats' milk forms a flocculent and much more digestible curd than that of the cow—a very important matter in the rearing of infants. The hard curd of cows' milk is responsible for a good deal of indigestion and diarrhoea of infants. I feel safe in stating that less evil results in this direction would occur by the consumption of goats' milk than with cows' milk. The nourishment obtained from goats milk is also superior to that of cows' milk and is more suitable for infants."—From "The Lancet," London, November 3, 1906.

In this connection also, "The Lancet," May 25, 1907, says concerning an analysis of goats' milk made in the laboratory of that journal: "There are points about goats' milk in connection with infant feeding which deserve more attention than they have hitherto received. It is well known, for example, that the goat is remarkably resistant to tuberculosis; moreover, the milk appears to be more digestible than cows' milk, because its casein forms a flocculent rather than a hard, cheesy curd. It has been stated, however, that the unpleasant odor of goats' milk is an unfavorable feature. As a matter of fact, goats' milk can be as sweet in this regard as cows' milk, so long as the animals are kept under clean and proper conditions. A sample of goats milk submitted to us was perfectly sweet to the taste and smell, and there was no suggestion at all of the so-called goat flavor. The milk represented the drawing from a mixed herd which was entirely stall-fed, the dry foods given in the winter being replaced by a liberal allowance of grass and green stuff in the summer. The animals are carefully groomed and their udders washed daily."

"On analysis the milk gave the following results: Total solid matter, 14.57 per cent.; milk sugar, 5.05 per cent.; fat, 5.27 per cent.; protein, 3.43 per cent.; and mineral matter, 0.82 per cent.

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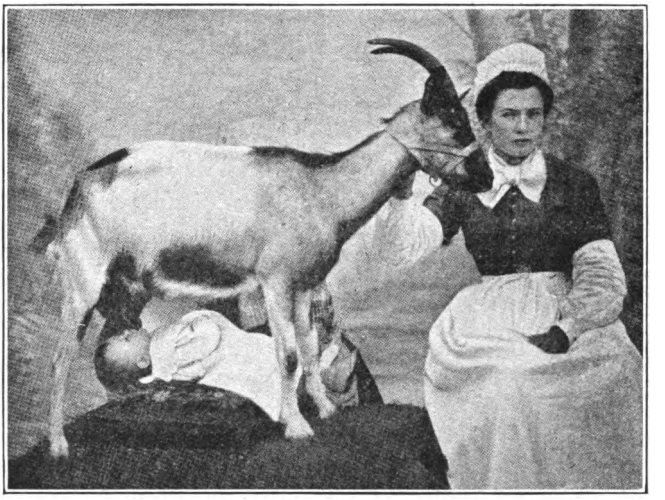
"It will be seen that the milk is of excellent quality, containing a maximum proportion of fat."

"The London 'Lancet' is probably the best medical journal in the world," so the New York "Independent" asserts. "It has been conducted for a century now on thoroughly conservative lines, and has been independent of all sorts of influences and has made its investigations of new remedies and modes of treatment for itself, even at great expense."



From *La Chevre* by Joseph Crepin.

"CHEVRE ALLAITANT UN ENFANT."

"When you have to keep connection unbroken between a restless mother of kids and a baby who is at the point of death you suffer in all your system."—From "William the Conqueror," by Kipling.

"One of the smallest babies ever seen in St. Mary's hospital was borne there yesterday. * * The doctors have prescribed as the infant's food modified goat's milk."

"The foregoing represents a news item excerpted from a New England paper of recent date. It commanded my attention and interest strongly at the time of first reading, not by reason of the tininess of the baby," says Professor T. R. Arkell, of the New Hampshire Experiment Station, "but by the fact that some

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doctors at least considered it advisable to rear infants on goat's milk. This decision of the doctors must have been arrived at after a deliberate and careful examination of the quality of goat's milk. No medical doctor in reputable standing can afford to be hasty in his conclusions, especially if the substance of those conclusions is given unreservedly to the public. The public is a hard arbiter and yet a fair one. Its vagaries and mistakes are few. The claims of anything whatever must be well founded and meritorious before it receives even the faintest approval of a majority of the people."

"Undoubtedly the public is beginning to recognize the great food value and freedom from tubercular disease of goat's milk. Wholesome, sanitary milk is the present cry. Wealthy consumers will pay almost any price, where they can be assured they are obtaining clean milk. The fact that bovine tuberculosis is communicable to man and that milk is one of the most effective vehicles for the growth and transmission of the tubercle bacillus is making people cautious of the milk they drink. They demand clean milk from healthy animals. To meet this demand certified milk was placed on the market and it possesses a wide sale at a high price. Goat's milk should be sold at equally as great a price, if not generally greater, as certified milk from the cow, providing anything like reasonable methods of cleanliness anent housing and milking are adopted, for tuberculosis in the goat is exceedingly rare and tubercular lesions, even when found, always slight. This fact in itself, when the public distinctly recognizes and appreciates it, should render the sale of goat's milk comparatively easy."

"Recently I visited a lady who had just purchased an American goat, but after using the milk several times stated it had such a horrid flavor and odor that no one would drink it. Little wonder, too! The goat was kept in an uuused hog barn, where conditions were filthy and the goat, being dirty and unkempt, possessed not only its own natural odor in its strongest and most disagreeable form, but that of the former inmate of the enclosure as well—the hog. Within a few hours I had corrected these conditions by thoroughly washing the goat and placing it in a clean pen. The milk that night the lady declared delicious. Goat's milk, it is true, has a somewhat characteristic aroma and flavor, but it is by no means pronounced and can scarcely ever be distinguished from cow's except by the extra sweetness and creaminess, where strict cleanliness is observed. In fact, any person who has once drunk clean goat's milk cannot help but grow fond of it. It is highly nutritious and is richer in butter fat than cow's milk."—From the "Shepherd's Journal," July, 1911.

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The neglect in using the Milch goat for dairy purposes in this country is due, to a considerable extent perhaps, to prejudice arising from the ridicule of which the little animal is so frequently the undeserved victim. But more largely owing to the fact that the advantages of goat-dairying, both from a hygienic and commercial point of view, are but imperfectly understood.

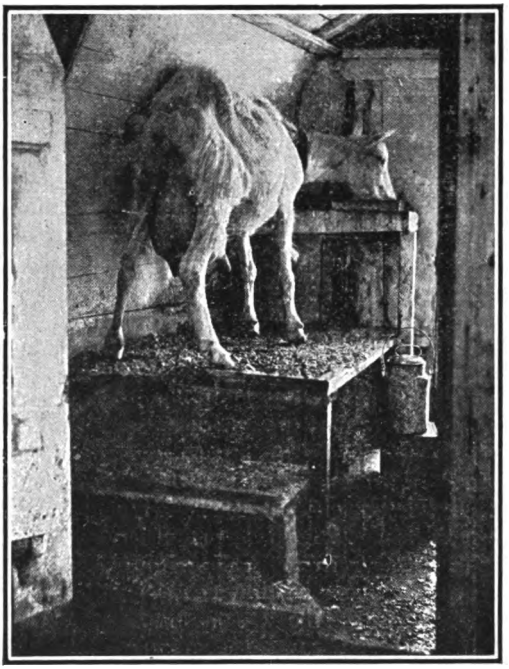

Photo. by R. R. McGeorge.

NANNETTE ON THE MILKING PLATFORM.

Among other advantages in favor of the goat as a dairy animal, Dr. J. Finley Bell, in a paper read before the New York Academy of Medicine, on "Some Fat Problems and Goat's Milk in Infant Feeding," claims the following: "She is more docile, less excitable, not subject to tuberculosis or other disease in this climate. Being a browser rather than a grazer, she will thrive where cows would not; and above all, she is cleanly. Her excrement is solid and her tail short, consequently she is not covered with manure as is a cow. It is safe to assert that the production of cow's milk free from manure bacteria is commercially impossible. Not so with the goat; she can be easily washed (tubbed if necessary) and aproned for milking."

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YIELD OF MILK.

The Milch goat is a persistent, regular and economic producer of milk. Foreign writers on the subject agree in saying that, "many goats yield ten times their weight of milk annually, and exceptional animals as much as eighteen times their weight."

Petersen, a German authority, says: "In its form, the goat exhibits, as it were, the complete type of a milch animal, and by demonstration gives annually ten to sixteen times its own weight in milk, whereas in the case of the cow we must be well satisfied with five times its weight."

Actual tests made in Germany go to prove that eight goats will subsist upon the same amount of feed as that required for one cow, and at the same time yield a good flow of milk.

The yield and the period of lactation of the principal prize winners at the Milking Competition for Goats held at the Dairy Show, in Agricultural Hall, London, England, on October 8th and 9th, 1907, was as follows: Sedgemere Capella, the winner of the first prize, after having been in milk a period of 183 days, gave on the first day of the competition slightly over 9 lbs., and on the second day 8 lbs. It will be more generally understood what this means, when it is stated that 10 lbs. represents one gallon. Sedgemere Faith, the second prize winner, after having been in milk 189 days, gave on the first day 7.9 lbs., and the next day 6.8 lbs. The winner of the third prize, Sedgemere Louise, after having been in milk since January 11th, 1906, a remarkable period of 635 days, gave on the first day 3.3 lbs., and on the second day 3.5 lbs.

An authenticated five days' test of the milking powers of Sedgemere Faith, the second prize winner mentioned above, was made in 1905 under the direct supervision of the Hon. Secretary of the British Goat Society, Mr. H. S. Holmes-Pegler. The goat was milked twice daily, and the milk carefully weighed as well as measured, in the presence of Mr. Pegler. The quantity produced daily was, on an average, 10 lbs., 5 oz., or more than a gallon. In the last twenty-four hours during which she was under examination, the yield was 10 lbs., 10½ oz., or exactly a gallon and half a pint.

This splendid showing was made after the goat had been in milk nearly five months, and the season was just at the close of summer, when most goats which have kidded in the spring fall off in their yield.

M. Joseph Crepin, in "La Chevre," says that "Alpine goats well cared for can continue in milk without renewing it by a new gestation, during two or even three years in succession. Each year, however, the milk yield diminishes toward Autumn and is reduced one-half during the winter. Toward spring time the milk

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yield increases, so that the goat is capable of giving almost as much as when fresh.

HABITS AND DISPOSITION.

With regard to the habits and disposition of the female Milch goat, much may be said in her favor. With her face and dress always neat, she is the tidiest and daintiest eater of the animal family. She is very particular about her food and will eat nothing that is soiled or tainted. When pastured she delights in picking a morsel here and there, changing from grass to the sweet tender shoots of weeds and bushes, and nipping off the tender buds and leaves of young trees. A grown animal, while browsing, will sometimes stand erect and nip a leaf six feet from the ground.

A LOVER OF ANIMALS.

Kind Old Gentleman—What a delightful little pet! I have always a soft place for animals.—London *Punch*.

She is gentle, playful and intelligent, and the readiness with which she accommodates herself to any situation in which she may be placed is most remarkable. Whether turned loose on a common, or out in a yard, or tethered on a grass-plot with a "lean-to" for a shelter, or confined in a stable and stall-fed, she seems equally content and grateful for the very few favors she usually receives.

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ADAPTABILITY TO CONFINEMENT.

This adaptability to confinement, together with its productiveness, makes the Milch goat particularly valuable to the residents of cities and suburban places who desire to secure a regular supply of pure, new milk, without being dependent upon the milkman, whose "milkman's milk" is not always of the best quality and which, under the most favorable circumstances, is received and consumed with more or less suspicion as to its freshness, its cleanliness and its healthfulness.

A RIGHT TO POSSESSION.

"Give you back your goat? Look here ,madam, I suppose that you will admit that I have a right to my garden?" "Certainly." "Well, then, the whole of my garden is in the interior of your goat."—Paris *Pele Mele.* (A tight, straigh up and down fence 4 feet high, would have kept Nanny at home.)

While it is true that the ideal locality for goats is one that is high and rocky and overgrown with weeds, briars, brush and small trees, as they are by nature and preference browsing animals, in this respect being an exception to all other domestic stock, it is a fact that such a location is not essential. The Milch goat will thrive and produce a plentiful supply of rich milk when tethered on grass land, in addition to stall-feeding, if comfortably housed at night and during bad weather; or even when kept constantly in a barn and supplied with all its rations there.

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That the Milch goat would supply a long-felt want to dwellers in villages and country towns where cow's milk is difficult to obtain at any time and especially so in winter, needs no argument, as it will readily be seen that any one possessing a back-yard large enough to contain a shelter in which to house a goat or two may have a constant supply of sweet, rich milk for a very trifling outlay.

For with a couple of these hardy and productive little creatures, housed in a cheap, roughly constructed shed, and pastured on a common, the owner may enjoy greater advantage from an economic and hygienic point of view than does the proud possessor of a pampered, pedigreed cow of the most fashionable breed.

First: Because milk, the exclusive diet of many infants, children and invalids, and a most essential item on the daily bill of fare of every member of the household, is furnished more cheaply by the goat, as the yield of milk, when the size of the goat and the amount of feed and care are considered, is proportionately much greater than that of the cow.

Second: Because goat's milk is richer, more nutritious and more easily digested than cow's milk. Aside from its greater degree of richness there is no appreciable difference in appearance or taste. And, also, because the Milch goat is practically immune to tuberculosis, while "the apparently healthful and therefore unsuspected cow may be, and often is, dangerously tuberculous."

While most suburban residences have some kind of an outbuilding, which with a little contriving may be made into a comfortable goat-house, still a shed or "lean-to" of the cheapest construction will answer the purpose providing it is properly ventilated, has plenty of light and is dry and well-drained. Such a structure, six feet wide by eight or ten feet long, will comfortably house two or three goats. If more than one is kept they should be securely fastened, each one in its own little stall, particularly when being fed. In a city stable, small stalls, with low hay-racks and mangers, to suit the size and height of the animals, can be arranged in a corner in such a manner as to take up but little space.

While for back-yard dairying very inexpensive expedients may be made to answer, for commercial dairying a properly designed and constructed goat barn is a necessity. For it is true that, as Thompson says, "no one need expect to obtain a heavy flow of milk from does that are compelled to endure all sorts of weather. Everybody knows this fact in connection with the keeping of dairy cows; how much more should be demanded of a goat? The goat dislikes rain and mud, and will avoid contact with either if possible. Cold rains, sleet, and mud are very

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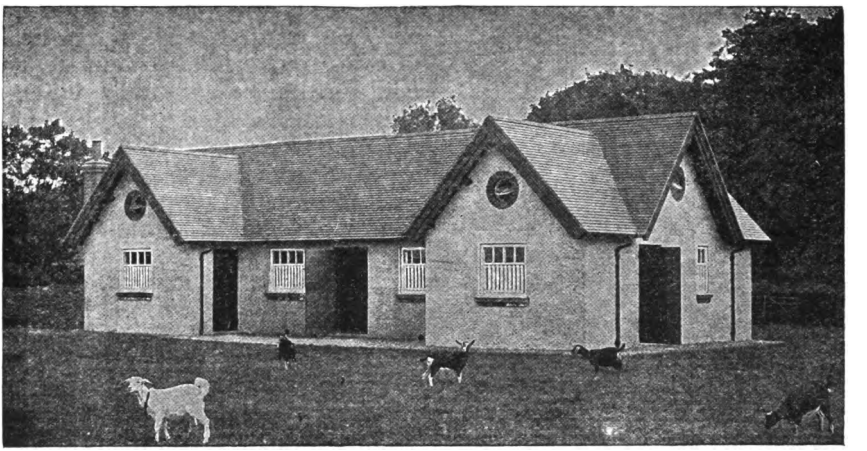
detrimental to grown goats and are almost sure to cause death in the very young kids."

THE GOAT BARN.

"The principles that should be observed in constructing a goat barn are the same as those governing a dairy barn. The matter of ventilation is of special importance; for there is no



Courtesy *The World's Work* (London)

THE COUNTESS BATHURST'S UP-TO-DATE GOAT HOUSE.

domestic animal that suffers so much as the goat when it is deprived of an abundance of fresh air. There should be plenty of light, and the sun should be enabled to shine in."

The illustration given herewith is reproduced from "Milch Goats and Their Management," by Bryan Hook, who describes his barn as follows: "I give herewith a plan of one of my own houses, the arrangement of which I have found to work well. It is designed to provide the greatest amount of accommodation in a limited space, the inside measurement of the house being 12 feet square.

"The building is of wood, lined inside, and the intervening space packed with straw and shavings; thus it is seldom that frost can effect an entrance, a point of some importance if it is desired to obtain milk in winter. There are six 2-foot stalls on one side, and on the other three 18-inch stalls, and two loose boxes, the latter to be used for goats that are expected to kid or for shutting kids away from their dams.

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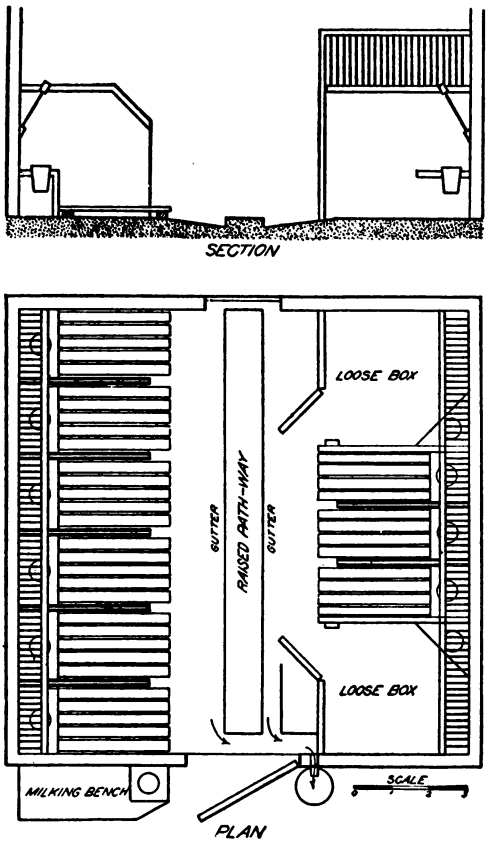
"The upper part of the loose boxes is made—as are also the hayracks—of ⅜-inch iron bars. Down the center of the house is a raised path with gutter on each side, so arranged that the liquid manure is discharged into a pail, as shown by the direction of the arrows. The milking bench is in the open air, but is protected from rain by the eaves of the thatched roof. This bench will be found a very necessary piece of furniture, for though the animals can be milked in their stalls, the operator will be apt to find the



Copied from Bryan Hook.

PLAN AND SECTION OF GOAT BARN.

stooping posture extremely irksome. If this bench, about 18 inches high, is placed in some convenient situation and fitted with a manger in which the goat's ration of corn or meal is placed, she will require very little training to mount it willingly the moment

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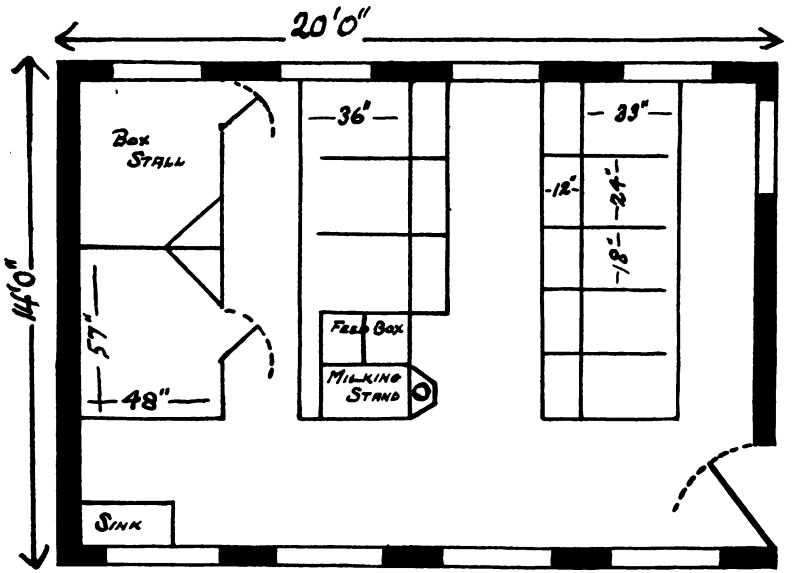
she is released, and in this position the milking can be done with comfort. Even a young goat that has never been milked before will learn in a few days to stand quietly, and my friends have often enjoyed a hearty laugh over the alacrity with which each in turn scampers round to the milking bench as its chain is unfastened."

The following plan of a goat barn, designed and built by F. C. Lounsbury, and the description of the same is presented here through his courtesy.



H. R. Lounsbury fecit.

FLOOR PLAN OF GOAT BARN.

"The building is 14x20 feet outside measure, with concrete foundation extending 16 in. above the ground, except at doorway; frame of 2x4s papered and boarded outside and inside; the ceiling is 7 feet, with small loft above; floor is concrete; stalls are built on wood platforms, 9 inches high at front and 7 at back; floor of platform is of matched boards and at the back extends 6 inches over the frame on which it rests; partitions between stalls are solid and 3½ feet high at front with slope toward back. Front window sills are 4½ feet from floor and windows extend to ceiling, being hinged at top to open in and have screens on outside; beneath the windows are drop doors opening to runs of which there are three; two at front and one at end

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of building. Windows along an aisle are lower and arranged to slide and are provided with screens in summer and tight shutters in winter.

"Box stalls have wood floors and partitions of slats and small shelves to hold food and water crocks which can be handled over partitions to avoid opening door. We use crocks for food and water; they are style made to hold 5 pounds butter; are 7 inches in diameter and 5 inches deep; they are much more sanitary than wooden boxes. A lump of rock salt is kept in small box in corner of each stall.

"Covered feed box (for grain) with two compartments is built on platform between stalls and milking stand and is a great convenience; milking stand is 16 inches wide and 15 inches high from floor; it is built on the platform which forms step at back; it is level and space beneath is convenient for curry comb, brush, etc. The stand is provided with stanchion and shelf in front to receive food crock.

"The mangers extend over the floor and the bottom of same is 17 inches above floor; in this space a shelf is built to hold empty crocks, etc., also closet for tools and small articles. Hay is thrown down in space between mangers whence it can easily be distributed. Sawdust or litter is kept on floor in rear of stalls to absorb moisture.

"When weaning kids we put them in box stall with their dam in regular stall in front of same; as they can see each other they make but little noise; one stall is provided with removable top to prevent extra active youngsters from jumping out. The building is designed for 5 goats and 3 goatlings; the box stalls being reserved for kidding time and for growing kids; as we now have an Annex to be used for buck and young stock when necessary, we are running the main building full with 10 goats and find it very convenient in every particular. It is rat proof, sanitary, easy to keep clean, cool in summer and warm in winter."

The Rev. David Campbell Mayers, a milch goat fancier and breeder of large experience, contributes the following description of his method of stall feeding, and also of his device for tethering goats, in use at his Bonnie Brier Chevrerie:

"There is a general impression that goats are omniverous, eating any and everything to which they may have access. This is a great mistake. The goat is the most fastidious of all our domestic animals. It refuses to drink any but pure fresh water, and scorns sloppy, sour, greasy or dirty food. Indeed, the greatest trouble in goat keeping is to prevent waste in stall feeding, for if any of the food is dropped under foot, it will never be eaten."

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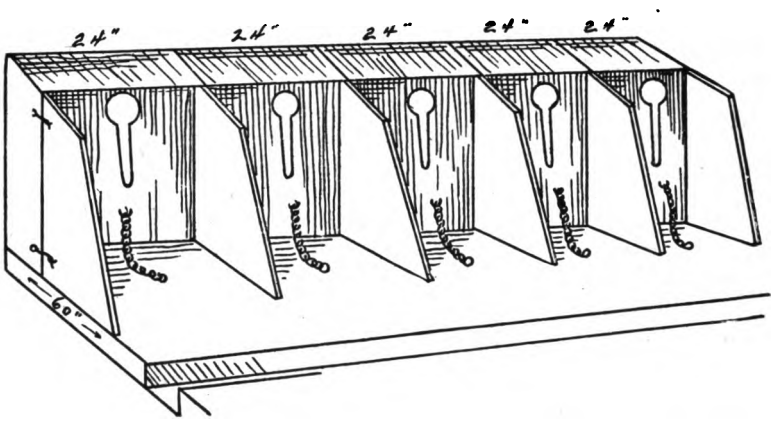
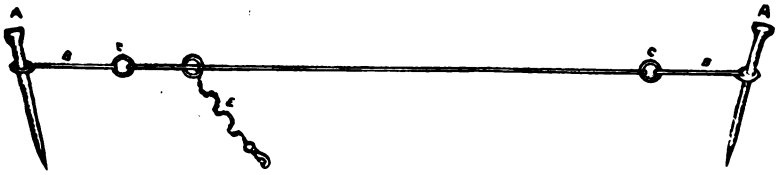


Rev. David C. Mayers fecit.

"In stall feeding, I have adopted a manger which years of practical experience and observation have proven to be satisfactory. Goats usually eat up their grain ration, but are wasteful of roughage. Then again, it is necessary that we should know exactly what each goat consumes, and whether she steals her neighbor's rations. The goat must elevate her head to get it through the round part of the opening into the manger, and then as she drops her head to get her food, her neck slips between the slot-like part of the opening. She must raise her head again in order to get it out. I use a heavy square wooden box to hold the grain ration, and remove it as soon as the grain is eaten. The manger or feeding box is quite separate from the stall; and hooks are used to keep it securely in position. It is not built like a rack as that, too, wastes a lot of roughage."



Rev. David C. Mayers fecit.

"Where free grazing is not possible, I use the tether shown in the illustration, which I have never seen used elsewhere. I have found it practical, safe and convenient. Used in an orchard, the stakes and wire are placed between the rows of trees, north and south one week and east and west the next."

"The iron stakes, A-A, are four feet long, driven two feet into the ground."

"The No. 8 galvanized iron wire may be any length desired, twenty feet is good."

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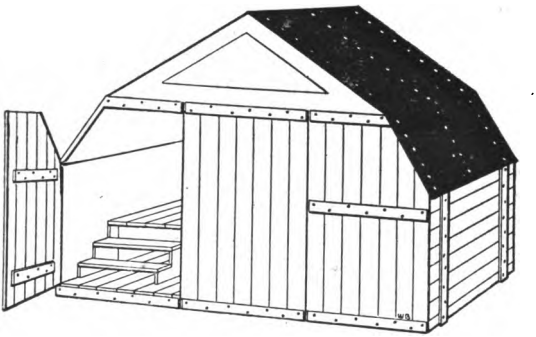
YARD WITH HARD SURFACE.

A yard, well drained and with a hard surface, should be connected with the barn, where the animals may get air and exercise during the day, if they do not have the run of a pasture. It is also a good plan to have an open shed in the goat yard, where the animals may go for protection from storms or the heat of the sun.

Where goats have access to a pasture having gravelly or rocky soil, their hoofs will be kept worn down by natural process; but where they are confined in barns and small inclosures, the hoofs will grow too long, and will interfere to a large extent with the movement of the animals. In this shape the hoofs will catch and hold a considerable amount of dirt, which is difficult to remove, and which is liable to make the parts sore and more subject to foot-rot than when the hoof is clean and in good condition. It is not difficult, however, to keep the hoofs properly pared with a sharp knife or clippers.

It is also most essential to the health and well-being of goats which are kept closely confined that they be thoroughly and frequently groomed. This will keep both hair and skin of the animals perfectly clean and free from all manner of parasites.



W. M. Bowen fecit.

DIAGRAM OF THE PIANO-BOX MILKING SHED.

A building in which to milk the goats may be cheaply and easily made from three upright piano boxes. The piano-box milking shed shown in the diagram given herewith was built by the writer after considerable planning and contriving. It has been found by experience to answer perfectly the purpose for which it was designed and constructed, as it furnished a clean, airy place in which to milk, and one which was easily kept in a sanitary condition, free from dust, flies, and all so-called "animal odors," as the doors, one at either end, and the muslin ventilators permit a free current of pure air.

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The art of milking can be acquired by the most unskilled, city-bred person by the exercise of patience and perseverance; patience on the part of the goats and perseverance on the part of the milker. While it naturally requires practice to become an adept, the directions given by Pegler, in "The Book of the Goat," will be found of great assistance in acquiring the "gentle art."

"SHE CAN MILK; LOOK YOU, A SWEET VIRTUE
IN A MAID WITH CLEAN HANDS."—*Shakespeare.*

The goat-keeper will invariably find a ready market for whatever milk is not needed in his own household, as physicians are prescribing it more and more, whenever obtainable, as an ideal nutrient for infants or invalids.

Milch goats should be fed four times a day when in milk, and three times a day the rest of the year. When stall-fed their chief article of diet is hay, clover preferred, supplemented by bran, oats and clean kitchen leavings, such as stale bread, apple and potato peelings, carrot, beet and celery tops, pea-pods, etc. They should be given only as much hay or grain as they will eat at one feeding; this amount is easily learned by experience and observation. The hay should be fed from little racks, above each small manger, with bars or slats sufficiently close together to prevent them from pulling down more than a mouthful at a time. In order to keep goats economically, this is important, as these fastidious and wasteful little creatures will not eat anything that has been trodden under foot or soiled in any manner. When obtainable it will be found advisable to furnish them with brush-wood and tree trimmings in order to indulge them in their deer-like propensity for browsing and bark-peeling.

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Photo. by R. R. McGeorge.

GROOMING A MILCH GOAT.

Using a common fibre scrubbing brush for the purpose.

The fancier who cares for and milks his goats himself will soon find that an hour or two a day thus spent will prove a very pleasant and satisfying occupation. The care of these "little giant milk producers," so aptly described by Hook as "the most intelligent, the most engaging, and most picturesque of domestic cattle," opens an inviting recreation or occupation, not only to men, but to women and even to children, commending itself especially to those whose health requires some light form of outdoor work, either as a vocation or an avocation. A great advantage, from an economic point of view, is that it requires but a small outlay to establish or to maintain a small goat dairy. In fact, there are few undertakings which can be commenced on so small a scale that can be made to pay so well, both in pleasure and profit.

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With regard to the feed, the methods of feeding, the interior arrangement of the goat-shed or barn and the care of the goats in general, it will be found advisable for the amateur fancier to follow, so far as possible, the practice advocated by Crepin, the French, Pegler and Hook, the English, or Dettweiler and Schneider, the German, authorities. Naturally each goat-keeper should adopt such of these authors' methods as are best suited to his own environment.

BUYING GOATS.

At the present time, those who wish to establish a small home dairy are obliged to depend almost entirely upon the native goat, for owing to the limited number of pure-bred Milch goats in this country, and as unfortunately Milch goat breeding is not yet an established industry, it will be a long time before the supply of either pure-bred or grade does equals the demand.

Pegler in his "Book of the Goat" gives the following useful advice to intending purchasers:

"In buying a goat, as in buying a horse, some knowledge and judgment are absolutely necessary to prevent one's being defrauded. Regarding the quantity of milk the goat is said to give, it is best not to take for granted that "she gives two quarts a day," but rather let the intending purchaser see the goat milked twice, if possible, before buying the animal; there will be then no doubt about the quantity given."

"A goat that yields less than a quart a day is not considered a good milker; if she yields two quarts a day she may be regarded as profitable, provided the yield is maintained for six or seven months. A doe yielding three pints a day with her first kid need not be set aside as an indifferent animal, as she will, in all probability, give twice that quantity on subsequent occasions."

There are certain points by which a good milch goat may generally be recognized, the principal feature being the shape of the body, the udder and the teats. The intending purchaser should look for a goat with a large, deep body with ribs well rounded, affording plenty of room for a big stomach. A heavy milker is generally wider and deeper at the hind-quarters than at the chest, with meagre body and protruding hip-bones. Thinness is no drawback if the animal is a good feeder. The udder should be large, thin in substance, soft and elastic to the touch. When quite full it will be greatly distended, but after milking it should shrink up to a very much smaller size. A goat which has a large udder when in milk, will exhibit very little when dry. When in good health milch goats carry their heads erect, their eyes are bright and sparkling, with a cheerful, inquisitive and intelligent expression; the nose is dry, nostrils moist, and mouth and gums a bright red, and the breath is sweet.

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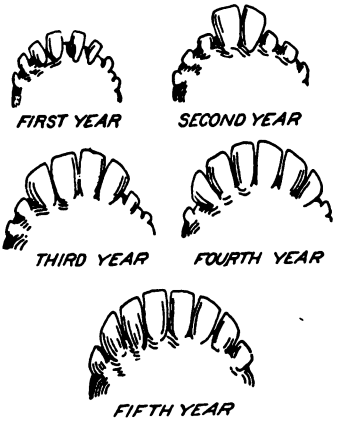
With the aid of the accompanying illustration from "Milch Goats and Their Management," the age of a goat, until after it is 4 years old, may be readily determined. During the first year a kid's teeth are small and even and sometimes separated, as shown in the cut; the second year the two front teeth are much



larger and higher; the third year two more large front teeth are added; the fouth year two more; and the fifth year two additional large teeth, which completes the set.

Considerable advantage may be derived by keeping two goats instead of one, the amount of time and trouble required being very little greater, whereas the results derived are more than double. The best plan is to begin by purchasing one that has just kidded, and when that one is becoming dry, to procure another just about to kid. By this means a regular supply of "certified" milk may be had the year round.

Good native goats usually cost from two to twenty dollars. Prices vary in different localities. Pure-bred and imported Swiss goats are quoted at from $25 to $50 per head for kids under one year, and from $35 to $100, and even more, for yearlings and older. They are exceedingly difficult to obtain even at these prices.

Common goats, which are fairly good animals, may, with a little persistent search, occasionally be found in the outskirts of our cities or towns, generally in the sections inhabited by our foreign population, where flocks of from three or four to a dozen goats may quite frequently be seen running at large in vacant lots or on the commons.

The fall of the year is the best time to buy, when free pasturage becomes scarce. Then owners are generally willing to part with even their best goats at reasonable prices, rather than feed

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and house them through the winter, when provender is high and stabling facilities often inadequate.

BEWARE OF MISREPRESENTATION.

"It must be a matter of genuine regret to all breeders of milch goats, who are endeavoring to advance the business in a legitimate way, to find that gross exaggeration and misrepresentation has invaded the field and with its usual effrontery and assurance is endeavoring to force its way to a prominent position in the industry. The milch goat of today needs no false witnesses to prop up her case before the court of public opinion, as those of us who are familiar with the facts are well aware. Let the truth, the whole truth and nothing but the truth be recorded for and against her and she will win the day.

"It is true that the general public is unduly prejudiced against the goat; this, however, by calm, persistent and truthful effort will be overcome; but with the Ananias club working overtime, spreading broadcast to prospective customers, statements which create a false and alluring hope in the mind of the victim, there must come the inevitable reaction and disgust with its accompanying injury, not only to those who are the cause but to all legitimate breeders as well.

"We wish to caution our readers not to be deceived by glittering promises and statements which may prove to be far from golden in the reality; high sounding names do not necessarily mean honest dealing; don't send your money to any breeder until you have satisfied yourself of his reliability in every sense of the word.

"Here is a quotation from the printed circular letter of one who claims to raise milch goats 'by the hundreds.' 'A good milch doe of either the Toggenburg or Saanen breeds will flow on an average of about four quarts daily for about 10 months from kidding with proper care and feed and should average three kids in 12 months.' Such a doe would certain be **a good one.** Swiss Echo, a Saanen goat bred in America has a record of over four quarts per day for a period of 8 months; an imported Saanen at the New York Agricultural Experiment Station gave 1,845 pounds in 10 months or just about three quarts per day. But these are exceptional cases and a doe that will average even two quarts for 10 months is a prize of the first water, while most of us feel satisfied if we can average 1½ quarts for 7 or 8 months and such a goat is a paying investment even if you have to buy every ounce of her feed.

"Some breeders say that ten goats can be kept at the same cost as one cow and that the milk costs only one cent per quart to raise and sells readily for fifty. What nonsense! We know from actual experience that you can stall-feed six average goats for the same amount as one average cow and this we consider

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favorable to the goat. We also know that some get pasture for their goats for nothing and feed them no grain and figuring nothing for the labor, the milk costs them absolutely nothing (not even one cent per quart), during the summer, but to accept that as the average cost of raising the milk would be just as misleading as to assume 50 cents as the correct selling price.

FACTS REGARDING GOAT KEEPING.

"The facts are that the Swiss milch goat is a clean, odorless, intelligent animal (practically immune from tuberculosis), producing the most wholesome and nutritious milk known, which is unequaled for babies and children, either sick or well, and for adults in poor health, especially with stomach trouble of any kind. The milk has a delicious flavor, different from and to our taste much superior to the average cow's milk. Under almost any circumstances it can be produced cheaper than cow's milk can be purchased and we unhesitatingly recommend the goat to all (either rich or poor) who want to obtain an economical, healthful and pure milk.

"As to the business of producing and selling goat's milk, much depends upon the proximity and stability of the market and much upon the ability of the producer to obtain an even supply month by month. We believe this can be done but it is a serious factor if milk is to be produced in any quantity.

"By keeping three milch goats, the writer has been able to obtain a daily supply throughout the year, the quantity varying from one pint to three quarts per day and the kids given all the milk for the first six weeks and a varying portion thereafter, according to circumstances. During the summer with **free** pasture and small allowance of grain, the milk cost about two cents per quart, while during the winter, with **all feed purchased,** it reached an average of seven and one-half cents per quart. This is for feed only, no charge being included for labor and no allowance made for sale of kids.

"For anyone interested in animals, the care and breeding of goats is a most attractive and healthful occupation and under proper conditions can be made to pay good dividends, but it should be started on a small scale and with the same caution and prudence that one would be expected to exercise in taking up any new business."—Editorial, "The Twentieth Century Home and Farm," June, 1914.

So far as attempting to overcome the ignorance and prejudice regarding the goat by any organized or systematic effort toward educating the public with reference to the economic, dietary and sanitary value of the animal we are far behind other civilized countries.

It is much to be regretted that, while the experts of the U. S. Department of Agriculture have been for years engaged in

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working out many other important problems in plant and animal breeding, apparently the goat has been considered of so little value that no systematic or practical investigations have been made along scientific lines, with a view toward determining which of the foreign breeds of Milch goats are best suited to our needs; nor regarding the development of native breeds of "deep

Photo by C. L. McIlvaine.

BABETTE AND NANNETTE.

The milk from these goats saved the lives of five babies. Is milch goat keeping worth while?

milking" goats; nor with reference to the improvement of our Common goats, by increasing the size and quality of the short-haired varieties, and thus making them more valuable for their flesh and for their skins, and as foundation stock for grade Angoras and Milch goats.

Considering, however, the fact that during the ten fiscal years ending June 30th, 1914, goat-skins to the value of $256,660,-350 were bought by the United States from other countries, as practically none were produced in this country, is not here, alone, an "infant industry" well worth "investigating" and "fostering"?

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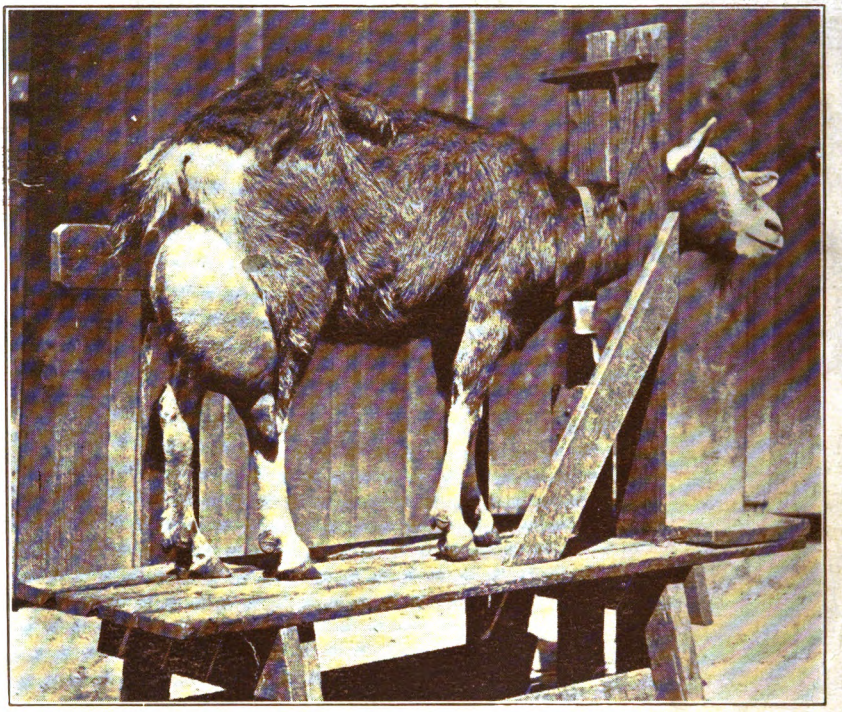

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